

**NATIONAL POLLUTANT DISCHARGE
ELIMINATION SYSTEM (NPDES)
PERMIT APPLICATION
FOR
FALLING STAR FARM, LLC**

ASHLAND COUNTY
POLK, OHIO

APRIL 10TH, 2018



PREPARED BY:

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Falling Star Farm, LLC
NPDES Permit Application

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Attachment Q – Operating Record

1 Falling Star Farm, LLC OEPA Forms

- 1.1** Form 1 General. U.S. Environmental Protection Agency EPA General Information Consolidated Permits Program
- 1.2** Form 2B NPDES. U.S. Environmental Protection Agency. EPA. Applications For Permit to Discharge Wastewater Concentrated Animal Feeding Operations and Aquatic Animal Production Facilities
- 1.3** Antidegradation Addendum

Please type. Do not complete by hand.

FORM 1 GENERAL	<h1 style="margin:0;">EPA</h1>	U.S. ENVIRONMENTAL PROTECTION AGENCY GENERAL INFORMATION <i>Consolidated Permits Program</i> <i>(Read the "General Instructions" before starting)</i>	I. EPA I.D. NUMBER				
LABEL ITEMS	Ohio EPA does not provide labels. Enter this information in items I, III, V and VI.		If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in below. Also, if any of the preprinted data is absent (the area to the left of the label space lists the information that should appear), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete items I, III, V, and VI (except VI-B which must be completed regardless). Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.				
II. EPA I.D. NUMBER							
III. FACILITY NAME							
VI. FACILITY MAILING ADDRESS							
VI. FACILITY LOCATION							
II. POLLUTANT CHARACTERISTICS							
INSTRUCTIONS: Complete A through G to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms .							
SPECIFIC QUESTIONS	MARK 'X'		SPECIFIC QUESTIONS	MARK 'X'			
	YES	NO	FORM ATTACHED		YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C. Is this a facility which currently results in to discharges waters of the U.S. other than those described in A or B above? (FORM 2C)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	D. Is this a proposed facility (other than those described in A or B above) which will result in a discharge to waters of the U.S.? (FORM 2D)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
E. Is this a facility which does not discharge process wastewater? (FORM 2E)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	F. Is this a facility which discharges stormwater associated with industrial activity? (FORM 2F)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
G. Do you generate sewage sludge that is ultimately regulated by Part 503? Do you generate sewage sludge that is sent to another facility for treatment or blending? Do you process or derive material from sewage sludge that is disposed in a manner subject to Part 503? (FORM 2S)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
III. NAME OF FACILITY							
Falling Star Farm, LLC							
IV. FACILITY CONTACT							
A. NAME & TITLE (last, first, title)				B. PHONE (area code & no.)			
Personal Privacy/Ex. 6				Personal Privacy/Ex. 6			
V. FACILITY MAILING ADDRESS							
A. STREET OR P.O. BOX							
Personal Privacy/Ex. 6							
B. CITY OR TOWN				C. STATE	D. ZIP CODE		
Polk				OH	44866		
VI. FACILITY LOCATION							
A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER							
Personal Privacy/Ex. 6							
B. COUNTY NAME							
Ashland County							
C. CITY OR TOWN				D. STATE	E. ZIP CODE	F. COUNTY CODE (if known)	
Polk				OH	44866	April 10, 2018	

VII. SIC CODES (4-digit, in order of priority)			
A. FIRST		B. SECOND	
0241	(specify) Dairy Farms		(specify)
C. THIRD		D. FOURTH	
	(specify)		(specify)
VIII. OPERATOR INFORMATION			
A. NAME			B. Is the name listed in Item VIII-A also the owner?
Falling Star Farm, LLC			<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)			D. PHONE (area code & no.)
F = FEDERAL M = PUBLIC (other than federal or state) S = STATE O = OTHER (specify) P = PRIVATE	P	(specify) Private	Personal Privacy/Ex. 6
E. STREET OR P.O. BOX			
Personal Privacy/Ex. 6			
F. CITY OR TOWN	G. STATE	H. ZIP CODE	IX. INDIAN LAND
Polk	OH	44866	Is this facility located on Indian lands? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
X. EXISTING ENVIRONMENTAL PERMITS			
A. NPDES (Discharges to surface water)	D. PSD (Air emissions from proposed sources)		
B. UIC (Underground injection of fluids)	E. OTHER (specify)		
	(specify)		
C. RCRA (Hazardous waste)	F. OTHER (specify)		
	(specify)		
XI. MAP			
Attach to this application a topographical map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.			
XII. NATURE OF BUSINESS (provide a brief description)			
The facility is an operating dairy farm, which produces milk for consumer products. Animals currently onsite, include: 475 to 525 mature cows and 320 heifers.			
XIII. CERTIFICATION (see instructions)			
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.			
A. Name & Official Title	C. Date Signed		
Personal Privacy/Ex. 6 Member	4-6-18		
COMMENTS FOR OFFICIAL USE ONLY			

FORM
2B
NPDES
 U.S. ENVIRONMENTAL PROTECTION AGENCY
 APPLICATIONS FOR PERMIT TO DISCHARGE WASTEWATER
 CONCENTRATED ANIMAL FEEDING OPERATIONS AND AQUATIC ANIMAL PRODUCTION FACILITIES
I. GENERAL INFORMATIONApplying for: Individual Permit ☒Coverage Under General Permit ☐**A. TYPE OF BUSINESS**

- ☒ 1. Concentrated Animal Feeding Operation (complete items B, C, D, and section II)
- ☐ 2. Concentrated Aquatic Animal Production Facility (complete items B, C, and section III)

B. CONTACT INFORMATION

Owner/or
Operator Name: **Personal Privacy/Ex. 6**
 Telephone: **Personal Privacy/Ex. 6**
 Address: **Personal Privacy/Ex. 6**
 Facsimile:
 City: Polk State: OH Zip Code: 44866

C. FACILITY OPERATION STATUS

- ☒ 1: Existing Facility
- ☐ 2: Proposed Facility

A. FACILITY INFORMATION

Name: Falling Star Farm, LLC

Telephone: **Personal Privacy/Ex. 6**Address: **Personal Privacy/Ex. 6**

Facsimile:

City: Polk

State: OH

Zip Code: 44866

County: Ashland

Latitude: **Personal Privacy/Ex. 6**Longitude: **Personal Privacy/Ex. 6**

If Contract Operation: Name of Integrator:

Address of Integrator:

II. CONCENTRATED ANIMAL FEEDING OPERATION CHARACTERISTICS**A. TYPE AND NUMBER OF ANIMALS****B. MANURE, LITTER, AND/OR WASTEWATER PRODUCTION AND USE****1. TYPE****2. ANIMALS**NO. IN OPEN
CONFINEMENTNO.
HOUSED
UNDER
ROOF☒ Mature Dairy Cows

475 to 525

☒ Dairy Heifers

320

☐ Veal Calves☐ Cattle (not dairy or veal calves)☐ Swine (55 lbs. or over)☐ Swine (under 55 lbs.)☐ Horses☐ Sheep or Lambs☐ Turkeys☐ Chickens (Broilers)☐ Chickens (Layers)☐ Ducks☐ Other: Specify

1. How much manure, litter, and wastewater is generated annually by the facility?
 2,921 tons 6,800,000 gallons

2. If land applied how many acres of land under the control of the applicant are available for applying the CAFOs manure/litter/wastewater?
 599.9 acres

3. How many tons of manure or litter, or gallons of waste-water produced by the CAFO will be transferred annually to other persons?
 1,486 tons 0 gallons

3. TOTAL ANIMALS

795 to 845

Form Approved
OMB No. 2040-0250C. ☒ TOPOGRAPHIC MAP

D. TYPE AND CONTAINMENT, STORAGE, AND CAPACITY

1. Type of Containment

Total Capacity (in gallons)

☐

Lagoon

☒

Holding Pond

1.2MM existing/5.7MM proposed

☐

Evaporation Pond

☒

Other: Specify Solid Storage Pad

Temporary

2. Report the total number of acres contributing drainage:

acres

3. Type of Storage

Total Number of
DaysTotal Capacity
(gallons/tons)☐

Anaerobic Lagoon

☒

Storage Lagoon

97

1,200,000 gal

☐

Evaporation Pond

☐

Aboveground Storage Tanks

☐

Belowground Storage Tanks

☐

Roofed Storage Shed

☐

Concrete Pad

☐

Impervious Soil Pad

☒

Other: Specify Proposed Storage

462

5,700,000 gal

E. NUTRIENT MANAGEMENT PLAN

Note: Effective February 27, 2009, a permit application is not complete until a nutrient management plan is submitted to the Permitting Authority.1. Please indicate whether a nutrient management plan has been included with this permit application. ☒ Yes ☐ No

2. If no, please explain:

3. Is a nutrient management plan being implemented for the facility? ☒ Yes ☐ No

4. The date of the last review or revision of the nutrient management plan. Date: April 2, 2018

5. If not land applying, describe alternative use(s) of manure, litter, and/or wastewater: N/A

F. LAND APPLICATION BEST MANAGEMENT PRACTICES

Please check any of the following best management practices that are being implemented at the facility to control runoff and protect water quality:



Antidegradation Addendum

Division of Surface Water

In accordance with Ohio Administrative Code (OAC) 3745-1-05 Antidegradation, additional information may be required to complete your application for a permit to install (PTI) or National Pollutant Discharge Elimination System (NPDES) permit. For any application that may result in an increase in the level of pollutant being discharged (NPDES and/or PTI) or for which there might be an activity taking place within a stream bed, the processing of the permit(s) may be required to go through procedures as outlined in the antidegradation rule. The rule outlines procedures for public notification and participation as well as the procedures pertaining to the levels of review necessary. The levels of review necessary depend on the degradation being considered/requested. The rule also outlines exclusion from portions of the application and review requirements and waivers that the Director may grant as specified in Section OAC 3745-1-05(D) of the rule. Please complete the following questions. The answers provided will allow the Ohio EPA to determine if additional information is needed. **All projects that require both an NPDES and PTI should submit both applications simultaneously to avoid going through the antidegradation process separately for each permit.**

A. General Information

Applicant:	Falling Star Farm, LLC
Facility Owner:	Falling Star Farm, LLC
Facility Location (city & county):	Polk, Ashland County, Ohio
Application or Plans Prepared by:	North Point Engineering Corporation
Project Name:	Falling Star Farm, LLC
NPDES Permit No. (if applicable):	

B. Antidegradation Applicability

Is the application for? (check as many as apply)

<input checked="" type="checkbox"/>	Application with no direct surface water discharge (<i>Projects that do not meet the applicability section of OAC 3745-1-05(B)(1)</i>). Examples include on-site disposal, extensions of sanitary sewers, spray irrigation, indirect discharge to POTW, etc. Complete Section E.
<input type="checkbox"/>	Renewal NPDES application or PTI application with no requested increase in loading of currently permitted pollutants. Complete Section E.
<input type="checkbox"/>	PTI and NPDES application for a new wastewater treatment works that will discharge to a surface water. Complete Sections C & E.
<input type="checkbox"/>	PTI and/or NPDES application for an expansion/modification of an existing wastewater treatment works discharging to a surface water that will result in any of the following: <ul style="list-style-type: none"> • Addition of any pollutant not currently in the discharge; or • An increase in mass or concentration of any pollutant currently in the discharge; or • An increase in any current pollutant limitation in terms of mass or concentration. Complete Sections C & E.
<input type="checkbox"/>	PTI application that involves placement of fill or installation of any portion of a sewerage system (i.e., sanitary sewers, pump stations, WWTP, etc.) within 150 feet of a stream bed. Please provide information requested on the stream evaluation addendum and complete Section E.
<input type="checkbox"/>	Initial NPDES application for an existing treatment works with a wastewater discharge prior to October 1, 1996. Complete Sections D & E.
<input type="checkbox"/>	Renewal NPDES application or modification to an effective NPDES permit that will result in any of the following: <ul style="list-style-type: none"> • A new permit limitation for a pollutant that previously had no limitation; or • An increase in any mass or concentration limitation of any pollutant that currently has a limitation.

C. Antidegradation Information

1. Does the PTI and/or NPDES permit application meet an exclusion as outlined by OAC 3745-1-05(D)(1) of the Antidegradation rule?

☐ Yes. **Complete Question C.2.**

☐ No. **Complete Questions C.3 and C.4.**

2. For projects that would be eligible for exclusions provide the following information:

- Provide justification for the exclusion.
- Identify the substances to be discharged, including the amount of regulated pollutants to be discharged in terms of mass and concentration.
- A description of any construction work, fill or other substances to occur or be placed in or near a stream bed.

3. Are you requesting a waiver as outlined by OAC 3745-1-05(D)(2-7) of the Antidegradation rule? ☐ No ☐ Yes
If you wish to pursue one of the waivers, please identify the waiver and submit the necessary information to support the request. Depending on the waiver requested, the information required under question C.4. may be required to complete the application.

4. For all projects that do not qualify for an exclusion, a report must accompany this application evaluating the preferred design alternative, non-degradation alternatives, minimal degradation alternatives, and mitigative techniques/measures for the design and operation of the activity. The information outlined below should be addressed in this report. If a waiver is requested, this section is still required.

- Describe the availability, cost effectiveness and technical feasibility of connecting to existing central or regional sewage collection and treatment facilities, including long range plans for sewer service outlined in state or local water quality management planning documents and applicable facility planning documents.
- List and describe all government and/or privately sponsored conservation projects that may have been or will be specifically targeted to improve water quality or enhance recreational opportunities on the affected water resource.
- Provide a brief description of all treatment/disposal alternatives (preferred, non-degradation, minimal degradation and mitigative technique/measure) evaluated for this application and their respective operational and maintenance needs.

At a minimum, the following information must be included in the report for each alternative evaluated.

- Outline of the treatment/disposal system evaluated, including the costs associated with the equipment, installation, and continued operation and maintenance.
- Identify the substances to be discharged, including the amount of regulated pollutants to be discharged in terms of mass and concentration.
- Describe the reliability of the treatment/disposal system, including but not limited to the possibility of recurring operation and maintenance difficulties that would lead to increased degradation.
- Describe any impacts to human health and the overall quality and value of the water resource.
- Describe and provide an estimate of the important social and economic benefits to be realized through this proposed project. Include the number and types of jobs created and tax revenues generated.
- Describe environmental benefits to be realized through this proposed project.
- Describe and provide an estimate of the social and economic benefits that may be lost as a result of this project. Include the impacts on commercial and recreational use of the water resource.
- Describe the environmental benefits lost as a result of this project. Include the impact on the aquatic life, wildlife, threatened or endangered species.
- Describe any construction work, fill or other structures to occur or be placed in or near a stream bed.
- Provide any other information that may be useful in evaluating this application.

D. Discharge Information	
1. For treatment/disposal systems constructed pursuant to a previously issued Ohio EPA PTI, provide the following information:	
PTI Number:	
PTI Issuance Date:	
Initial Date of Discharge:	
2. Has the appropriate NPDES permit application form been submitted including representative effluent data? <input type="checkbox"/> Yes Go to Section E. <input type="checkbox"/> No See below.	
If no, submit the information as applicable under a or b as follows: a. For entities discharging process wastewater, attach a completed NPDES 2C form. b. For entities discharging wastewater of domestic origin, attach the results of a least one chemical analysis of the wastestream for all pollutants for which authorization to discharge is being requested and a measurement of the daily volume (gallons per day) of wastewaters being discharged.	
E. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to be best of my knowledge and belief, true, accurate and complete.	
This section must be signed by the same responsible person who signed the accompanying permit application or certification as per 40 C.F.R. 122.22	
Signature:	<div style="background-color: black; color: red; padding: 5px; display: inline-block;">Personal Privacy/Ex. 6</div> <i>OWNER Member</i>
Date:	

2 Falling Star Farm, LLC topographic map and site plan

2.1 The site topographic map is in Attachment A.

2.2 The site plan is in Attachment B.

3 Manure Management Plan

3.1 Storage of Manure

Additional manure storage structures are planned for the second half of 2018.

3.2 Mortality Management

The most current Mortality Management Plan for the site is included as Attachment C.

3.3 Diversion of Clean Water

Clean water is diverted from the manure collection facilities by a network of existing and future planned drainage swales and culverts; see the attached Site Plan in Attachment B.

3.4 Inspections, Monitoring and Maintenance Activities

Inspections and maintenance activities will be done in accordance with the requirements included in Attachment E.

3.5 Manure Distribution and Utilization Plan

The majority of the manure is spread on acres that are under the control of the facility. Approximately 1,486 tons of solid manure is transferred annually to other persons.

3.6 Manure Application Plan

Manure will be land applied following a Manure Management Plan. See the narrative plan in Section 3.10 for procedures in developing the manure management plan. Field maps, with setbacks, and soil tests are included in Attachment F.

3.7 Total Nutrient Budget

The estimated nutrient to be managed under the plan is estimated for Section 3.18.

3.8 Manure Characterization

Manure analyses (once taken) will be included in Attachment G.

3.9 Chemical Handling

Chemicals and other contaminants handled at the dairy shall not be disposed of in any manure, litter, process wastewater, or storm water storage system.

3.10 NMP Narrative

This facility chooses the “narrative” rate approach for expressing nutrient application rates. The methodology outlined for determining manure application rates in this NMP will be adhered to each year for determining nutrient application rates. The intended crop rotations are listed for each field in the crop summary table however, any crop utilized in this plan may be planted on any field for any year. Nutrient applications and field nutrient balances are projected for the next five years, but these projections are for planning purposes only.

Calculate application rates following sound agronomic practices using the **“Tri-State Fertilizer Recommendations for Corn, Soybeans, Wheat and Alfalfa” (current edition of Ohio State University Extension Bulletin – E2567)**, **“Ohio Agronomy Guide”** (Current edition of Ohio State University Extension Bulletin - 472), and meeting the limitations as determined in accordance with the Ohio CAFO NPDES requirements and with the Ohio NPDES regulations.

Single liquid manure application rates shall not exceed 13,000 gal. per acre on any tilled field. When nutrient balances allow more than 13,500 gallons per acre in a crop year, multiple applications will be made. Application rates of liquid manure will be adjusted as needed based on soil moisture content at time of application.

Nitrogen application rates shall be based on plant uptake based realistic yield goals of planned crops allowing for nitrogen credits from past crops and mineralization of past manure applications and supplemental N applications.

The operation shall minimize potential N leaching to waters of the state by using the Ohio N leaching risk assessment tools and cover crops when N application occurs in the June to October first timeframe or limit the N application to 50 pounds per acre of storage available N.

Phosphorus application rates shall be based upon plant uptake, biomass removal, soil test analysis, realistic yield goals & crop rotations, supplemental P applications and Ohio NPDES permit requirements. P index risk assessment or P soil test risk assessment shall be done prior to land application of manure to minimize P runoff to waters of the state.

Multi-year P application rates may be utilized. Land application rates will not exceed three times the one-year P application rate, and subsequent livestock waste applications will not occur until the applied P is estimated to have been removed. Multi-year P application rates will not exceed the N application rate.

Examples of the above calculations are included in the following manure management plan data documents. Also included are projections of manure applications and field nutrient balances for the next five years.

The facility will keep all appropriate records needed for the NMP, including:

- Expected crop yields
- Manure application dates
- Weather conditions 24 hours prior to application, 24 hours after application and at the time of application.
- Test methods used to sample & analyze manure and soil
- Results from soil and manure sampling
- Explanation of the basis for determining manure application rates
- Calculations showing total N & P applied to each field, from all sources
- Total amount of N & P applied to each field and calculations of total amount applied
- Manure application method
- Dates of manure application equipment inspection

All land application restriction found in this NMP and any additional restrictions in the facility's CAFO NPDES permit shall be followed.

3.11 Planned Manure Exports off the Farm

There are no planned manure exports off the farm.

3.12 Field Information

Field ID	Subfield ID	Total Area (ac.)	Spreadable Area (ac)	County	Predominant Soil Type	Watershed 12-Digit Code	FSA Farm	FSA Tract
Personal PIR	CNS1	51.2	45.9	Ashland	Centerburg SIL	050400020602	4212	1307
Personal PIR	CSW1	35.4	30	Ashland	Centerburg SIL	050400020602	4212	1307
Personal PIR	CSE1	29.7	27.4	Ashland	Centerburg SIL	050400020602	4212	1307
ES89C1		21.2	18.3	Ashland	Bennington SIL	050400020501	4212	7078
JSE1		22.5	17.7	Ashland	Centerburg SIL	050400020602	4209	1089
JMF1	b	8.7	8.3	Ashland	Centerburg SIL	050400020602	4209	1089
JMF1	a	15.1	12.5	Ashland	Centerburg SIL	050400020602	4209	1089
JNE22	b	9.3	8.1	Ashland	Centerburg SIL	050400020602	4209	1089
JNE22	a	8.3	8.2	Ashland	Centerburg SIL	050400020602	4209	1089
Personal PIR	M35	28.5	26.3	Ashland	Fitchville SIL	050400020501	480	1931
NW16		12.7	10.5	Ashland	Bennington SIL	050400020501	4212	6220
620NS89		26.9	23.3	Ashland	Bennington SIL	050400020501	4212	7078
MSBF1		21.5	21.2	Ashland	Centerburg SIL	050400020602	4212	7078
620ESS		25.9	22.8	Ashland	Centerburg SIL	050400020602	4212	7078
620WS89		24.9	21	Ashland	Centerburg SIL	050400020602	4212	7078
HE1		26.8	24.6	Ashland	Bennington SIL	050400020602	4212	7079
620WNS		16.3	15.7	Ashland	Bennington SIL	050400020602	4212	7079
MSESF1		30.1	25.6	Ashland	Centerburg SIL	050400020602	4212	7079
MB1		17.5	17.1	Ashland	Bennington SIL	050400020501		
Personal PIR	27A	15.4	12.7	Ashland	Bennington SIL	050400020602		
Personal PIR	29A	26.1	25.6	Ashland	Bennington SIL	050400020602		
KFF40		26.6	20.1	Ashland	Bennington SIL	050400020501	4849	7635
NGWS1		24.9	19.8	Ashland	Centerburg SIL	050400020501	4849	7635
NGC1		22	11.2	Ashland	Centerburg SIL	050400020501	4849	7635
KSF25		36.2	25.5	Ashland	Bennington SIL	050400020501	4849	7635
HN1		30	29.5	Ashland	Bennington SIL	041100010302		
BCRS1		26.3	21.7	Ashland	Mahoning SIL	041100010501	3670	1540
BNS1		25.5	19.6	Ashland	Ellsworth SIL	041100010501	3670	1540
G58E1		32.1	31.3	Ashland	Bennington SIL	041100010302	3953	6983

3.13 Soil Test Data

Field ID	Test Year	OM (%)	P Test Used	P	K	Mg	Ca	Units	Soil pH	Buffer pH	CEC (meq/100g)
Personal Privacy	2018	7.6	Bray P1	96	420	550	2350	ppm	6.9		17.7
Personal Privacy	2018	2.4	Bray P1	6	75	120	350	ppm	5.2	6.8	5.3
Personal Privacy	2018	2.5	Bray P1	11	89	125	350	ppm	5.1	6.7	6.6
ES89C1	2018	4.5	Bray P1	113	265	280	1350	ppm	7		9.8
JSE1	2018	2.2	Bray P1	9	85	120	350	ppm	5.3	6.8	5.4
JMF1	2018	7.1	Bray P1	97	389	520	2250	ppm	6.8		17.1
JMF1	2018	7.1	Bray P1	97	389	520	2250	ppm	6.8		17.1
JNE22	2018	5.8	Bray P1	88	242	320	1500	ppm	6	6.7	14.4
JNE22	2018	5.8	Bray P1	88	242	320	1500	ppm	6	6.7	14.4
Personal Privacy/ES	2018	5.8	Bray P1	143	338	280	1350	ppm	7.2		10
NW16	2018	2.3	Bray P1	10	78	110	350	ppm	5.2	6.8	5.3
620NS89	2018	3.2	Bray P1	35	153	180	700	ppm	5.7	6.8	7.8
MSBF1	2018	4.2	Bray P1	102	261	275	1250	ppm	3.4		9.5
620ESS	2018	5.8	Bray P1	149	381	310	1550	ppm	7.2		11.3
620WS89	2018	4.4	Bray P1	88	230	270	1250	ppm	6.8		9.4
HE1	2018	5.7	Bray P1	156	374	310	1500	ppm	7.3		11
620WNS	2018	5.2	Bray P1	150	381	310	1400	ppm	7.1		10.6
MSEF1	2018	5.5	Bray P1	153	356	295	1350	ppm	7		10.1
MB1	2018	6.7	Bray P1	104	312	385	1900	ppm	6.1	6.7	17.1
Personal Privacy/ES	2018	6.4	Bray P1	102	264	350	1750	ppm	6.2	6.8	14.7
Personal Privacy/ES	2018	2.5	Bray P1	11	84	125	500	ppm	5.2	6.7	7.4
KFF40	2018	5.6	Bray P1	148	377	300	1300	ppm	7.4		10
NGWS1	2018	2.3	Bray P1	5	69	115	300	ppm	5.2	6.8	5
NGC1	2018	2.7	Bray P1	6	103	120	400	ppm	5.3	6.8	5.7
KSF25	2018	2.4	Bray P1	8	76	110	200	ppm	5.4	6.9	3.3
HN1	2018	7.7	Bray P1	104	402	550	2400	ppm	6.7	6.9	18.8
BCRS1	2018	6.1	Bray P1	110	276	345	1550	ppm	6.2	6.8	13.7
BNS1	2018	5.2	Bray P1	90	246	330	1550	ppm	6.1	6.7	14.7
G58E1	2018	2.4	Bray P1	5	75	115	400	ppm	5.2	6.8	5.6

- See Nutrient Balance Evaluator, C 6.3 in Attachment D.

3.14 Manure Nutrient Analyses

Manure Analyses were taken from a similar facility. See Nutrient Balance Evaluator, Part C 7.12 & 7.13, in Attachment D for data.

Actual analyses will be updated and included in Attachment G.

3.15 Planned Crops and Fertilizer Recommendations

See Nutrient Balance Evaluator, Part C 6.1 & 6.2 in Attachment D.

3.16 Planned Manure Applications

See Nutrient Balance Evaluator in Attachment D. Livestock manure will be spread during the late summer and fall months. The liquid manure is applied with a Van Dale 4000 tanker and is incorporated immediately after application. Solid manure is surface applied with a solid manure spreader. When surface applying, the surface application setbacks are maintained.

3.17 Manure Inventory Annual Summary

See Nutrient Balance Evaluator in Attachment D.

3.18 Plan Nutrient Balance (Manure-spreadable Area)

See Nutrient Balance Evaluator in Attachment D.

3.19 Summary of currently planned future facility improvements

The existing facility has plans to design and construct one new manure storage pond in the location noted on the plans. When this pond is constructed, existing manure and wastewater will be directed to this structure. The site plans, along with the Nutrient Management Plan, will be updated at that time.

3.20 Ohio EPA CAFO NPDES Permit Manure Management Plan Signature Page

The Manure Management Plan submitted for review and approval by Ohio EPA shall be signed in accordance with the following as required in 40 CFR 122.22:

(1) For a corporation. By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

Note: EPA does not require specific assignments or delegations of authority to responsible corporate officers identified in Sec. 122.22(a)(1)(i). The Agency will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the Director to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions under Sec. 122.22(a)(1)(ii) rather than to specific individuals.

(2) For a partnership or sole proprietorship. By a general partner or the proprietor, respectively; or

(3) For a municipality, State, Federal, or other public agency. By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes: (i) The chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

All reports required by permits, and other information requested by the Director shall be signed by a person described in paragraph (a) of this section, or by a duly authorized representative of that person.

A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in paragraph (a) of this section;

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company, (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) and,

(3) The written authorization is submitted to the Director.

Changes to authorization. If an authorization under paragraph (b) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (b) of this section must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

Certification. Any person signing a document under paragraph (a) or (b) of this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Personal Privacy/Ex. 6

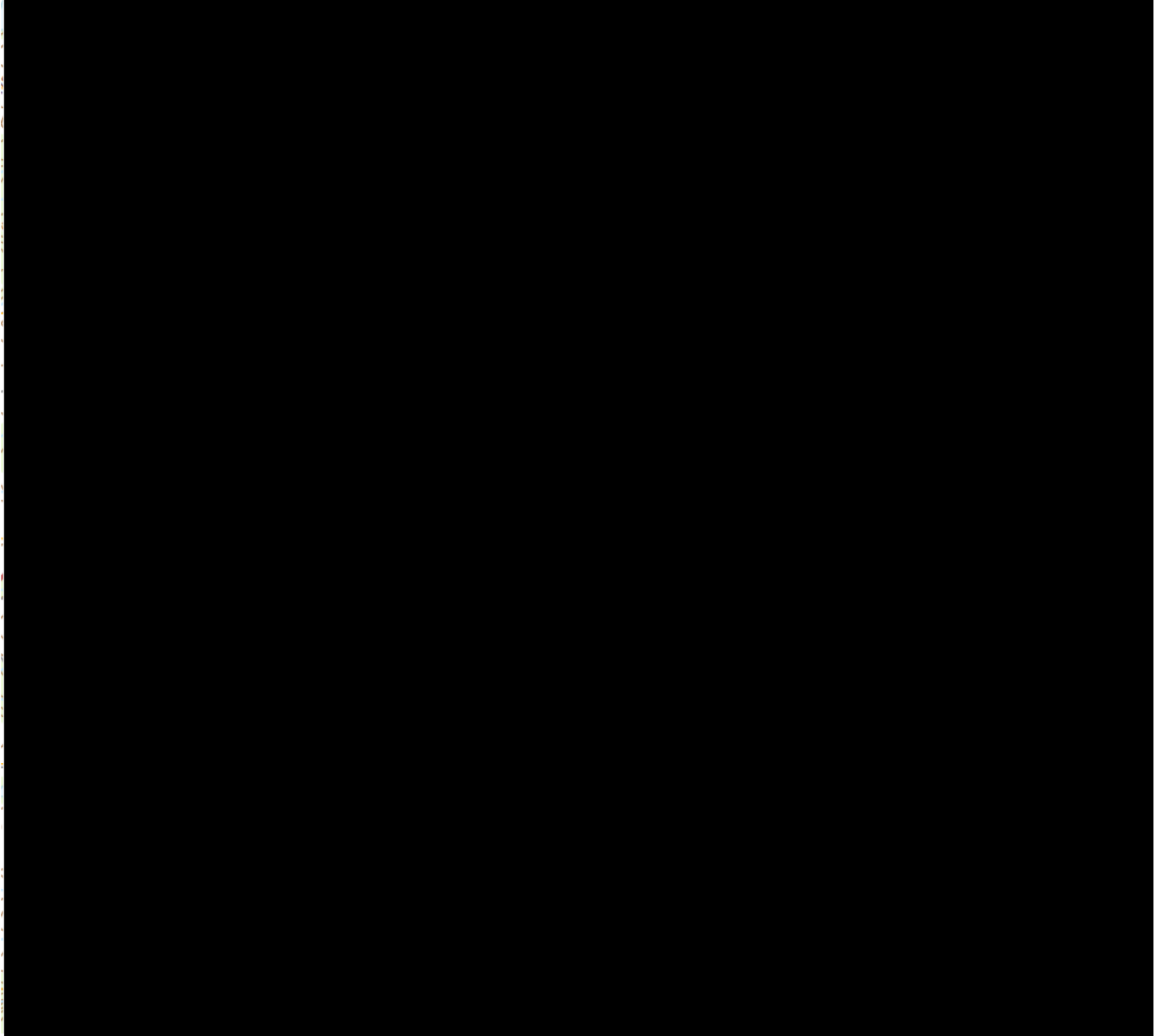
4-6-18

Date

ATTACHMENT A

Topographic Map

Personal Privacy/Ex. 6



*Not to scale

FALLING STAR FARM, LLC

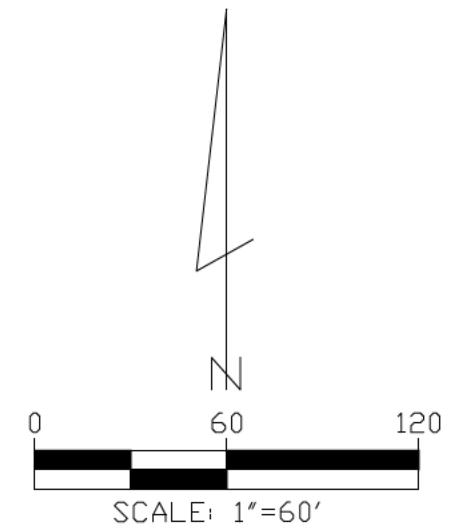
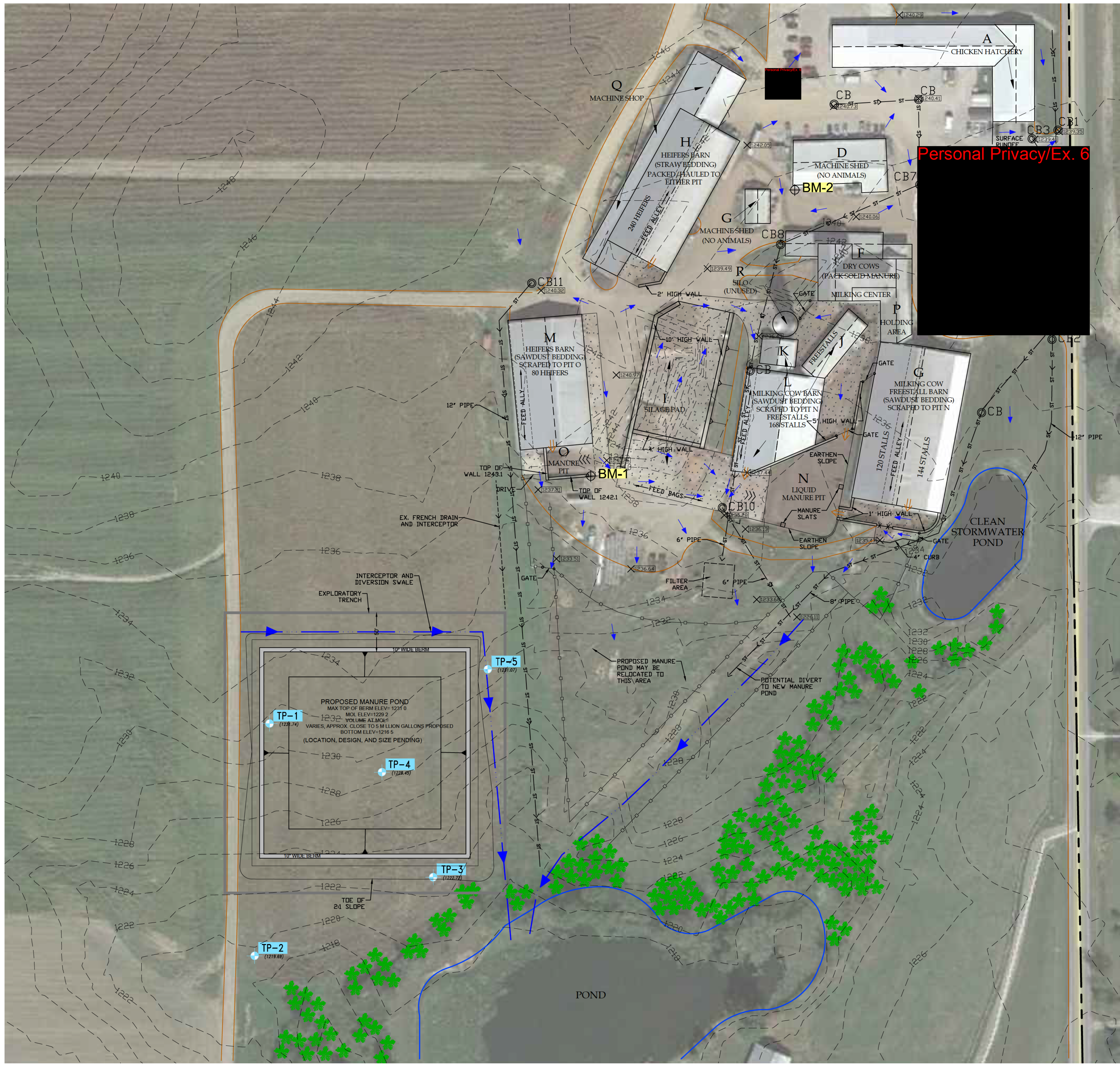
SITE LOCATION MAP

04/10/18

ATTACHMENT B

Site Plan

C:\Users\lbyington\Desktop\DWG001-SETBACK PLAN_4-9-18.dwg - Apr 09, 2018 - 2:09pm - lbyington



- LEGEND
- FACILITY PROPERTY LINE
 - EXIST CONTOURS (OGIP LIDAR OSIP I)
 - EX. DRAINAGE SWALE
 - EX. DRIVE
 - EX. FENCE
 - EX. CONCRETE
 - EX. WELL LOCATION
 - EX. STORMWATER CATCH BASIN
 - BENCHMARKS SURVEYED BY NPE 11-17-17
 - EX. SURVEY SHOTS BY NPE 2-23-18 (USED BM-1 AS ASSUMED ELEVATION BENCHMARK)
 - GENERAL SURFACE WATER FLOW DIRECTION
 - MANURE FLOW DIRECTION
 - GRAVITY STORM DRAIN
 - NRCS TEST PITS 11-18-10

BENCHMARK TABLE				
NO.	DESCRIPTION	ELEVATION	LAT	LONG
BM-1	ORANGE X CHISELED IN EX CONCRETE SLAB AT SW CORNER OF MACHINE SHOP	1239.85	Personal Privacy/Ex. 6	
BM-2	ORANGE X CHISELED IN EX CONCRETE SLAB AT END OF WALL	1240.05		

NOTE:
ADDITIONAL FACILITY IMPROVEMENTS ARE PLANNED. THIS PLAN WILL BE AMENDED AS NEEDED WHEN THERE ARE INSTALLED UPGRADES.

INFORMATION ON THIS SITE PLAN WAS OBTAINED FROM SITE OBSERVATIONS BY NORTH POINT ENGINEERING AND INFORMATION PROVIDED BY THE OWNER.

4-9-18 INITIAL
NPDES APPLICATION
SUBMITTAL

DATE: 5-30-17		REVISIONS	
PREPARED BY: DAG	BY:	DATE:	
DRAWN BY: B.J.L.	CHECKED BY: DAG	FILE:	
<p>6657 Frank Ave. N.W. Suite 200 North Canton, Ohio 44720 330 - 494 - 8888</p> <p>NORTH POINT ENGINEERING</p> <p></p>			
FALLING STAR FARMS		JACKSON TOWNSHIP, ASHLAND COUNTY, OHIO	
PERMIT TO OPERATE AND PERMIT TO INSTALL		SITING SETBACK PLAN	

ATTACHMENT C

Mortality Management



MORTALITY MANAGEMENT PLAN

OVERVIEW - Under Ohio law the disposal methods for dead livestock are as follows: burning, burial, composting, rendering, and landfill. See rule 901:10-2-15 of the Administrative Code and Sections 941.14, 953.26, 1511.022, and 3734.02 of the Ohio Revised Code. Mortality disposal must be performed using best management practices that are consistent with these sections. NPDES requirements prohibit the holder of a permit from disposing of any mortality in manure storage and treatment facilities, storm water management facilities, or any other treatment system that is not specifically designed and approved for mortality.

Burning – Burning mortalities is a biologically safe disposal method. The incinerator should be sited in a convenient location that will avoid potential problems and be downwind of livestock housing, farm residences, and neighbors. Owners or operators are encouraged to contact the Ohio EPA for information regarding incineration.

Burial – Burial involves excavating a grave or pit, filling the bulk of the excavation with dead animals, and then covering them with soil until the grave or pit is filled. Where burial is allowed, it must be in accordance with Ohio Revised Code Section 941.14.

Composting – Composting is similar to the process of natural decomposition except that it is enhanced and accelerated by mixing organic waste with other ingredients in a manner that optimizes microbial growth. Owners or operators who use composting are required to be certified by Ohio State University Extension or a local Soil and Water Conservation District.

Rendering – The use of rendering services recycles the nutrients contained in dead animals. Proper biosecurity measures must be utilized to minimize the spread of disease from farm to farm by transport vehicles and personnel. If animals are rendered, they should be transported to the rendering service within twenty-four hours of their death. The owner or operator is encouraged to contact the Ohio Department of Agriculture's Division of Animal Industry for additional information.

Sanitary Landfill – Sanitary landfills are engineered burial facilities for disposal of solid waste. Disposal of dead poultry and/or animals in a sanitary landfill is permitted in some areas. The CAFF or MCAFF is encouraged to contact the landfill operator to determine if the landfill accepts dead animals, the fees associated with the animals, and the proper containers for transport and disposal.

INSTRUCTIONS - A record of the date and time of each inspection for animal mortality must be recorded in the Operating Record at a frequency specified by the facility on this form. In order to complete this form, you should read the Ohio Department of Agriculture's Operating Record Form 9. Upon approval of the Permit to Operate and/or NPDES permit, you are required to maintain an Operating Record at your facility that documents your actions to comply with this mortality management plan. You may use other forms besides Form 9, provided those forms are pre-approved by ODA.

MORTALITY MANAGEMENT PLAN

Name of Facility: Falling Star Farm, LLC

	Name	Phone
Local Veterinarian:		
Ohio Department of Agriculture:	Animal Industry	(614) 728-6220
Ohio Department of Agriculture:	Livestock Environmental Permitting	(614) 387-0470

DISPOSAL METHODS

(Check all that apply)	LOCATION/COMPANY	EQUIPMENT NEEDED
<input type="checkbox"/> Burning		
<input type="checkbox"/> Burial		
<input checked="" type="checkbox"/> Composting*	TBD	
<input checked="" type="checkbox"/> Rendering		
<input type="checkbox"/> Sanitary Landfill		

*Check for moisture, carbon source, turning and leachate containment weekly.

BEST MANAGEMENT PRACTICES: Describe the best management practices that will be used to dispose of dead livestock:

Dead livestock is taken to a renderer. The owner is to install a suitable compost facility.

CATASTROPHIC MORTALITY EVENT: Provide a short description of procedures to be used in the event of a catastrophic loss if normal mortality management methods cannot handle such losses. If burial is chosen, identify on a site map the most logical location for burial, taking into consideration the siting criteria for manure storage or treatment facilities established in Rule 901:10-2-02:

In the event of a catastrophic mortality event, animals will be taken to a render.

ATTACHMENT D
Manure Generation & Nutrient Balance Evaluator

Manure Generation Worksheet

Falling Star Farm, LLC

April 2, 2018

C7.11

*This generation volume will be updated with the final design of the manure pond.

1. Dairy Operations

					Total manure		To Storage Pond
a. Manure							
Cow Type	Gals/day/cow	x No. of Cows	x Storage Period (days)	=	Gals		
Dry	8.6	95	365	=	298,205	(gals)	298,205
Lactating	18.7	380	365	=	2,593,690	(gals)	2,593,690
Washwater	8	380	365	=	1,109,600	(gals)	1,109,600
b. Bedding	Density Sand = 102 lbs/ft ³						
Type	Bedding (lbs)	x No. of Cows	x Storage Period (days)	=	Total Bedding		
Sand	40	475	365	=	6,935,000	(lbs)	
					67,990	(ft ³)	
					508,567	(gals)	
					Adjusted Bedding to Settling Basin (Assume 95% Removal Efficiency)		
					25,428	(gals)	25,428
Total to Storage					SUBTOTAL	(gals)	4,026,923

2. Normal Precipitation

a. Average precipitation less evaporation on the storage pits

See table below and pond cross section							
Month	Precipitation (in)	Evaporation (in)	30 yr avg net (in)				
January	2.60	0.70	1.90				
February	2.00	0.82	1.18				
March	3.20	1.60	1.60				
April	3.50	2.70	0.80				
May	4.00	4.01	-0.01				
June	4.00	4.70	-0.70				
July	4.10	4.70	-0.60				
August	2.90	4.10	-1.20				
September	2.70	2.90	-0.20				
October	2.10	2.18	-0.08				
November	2.60	1.26	1.34				
December	2.30	0.80	1.50				
Totals	36.00	30.47	5.53				
Manure Pond Areas			0.27	acres			
Collection area		=	0.27	acres (2 existing pits)			
Net collected		SUBTOTAL	5,420	ft ³	SUBTOTAL	(gals)	40,541
b. Normal runoff from facility into ponds							
Total annual average precipitation		=	36.00	inches			
Runoff areas are all impermeable surfaces		=	0.74	acres			
Runoff factor at 50% of precipitation		=	18.72	inches (AWMFH Figure 10C-2)			
Total runoff		SUBTOTAL	50,286	ft ³	SUBTOTAL	(gals)	376,137

3. Silage Leachate Seepage

a. Leachate seepage

Seepage	=	1.0	cubic feet per ton of stored silage			
Silage storage per acre	=	21500	tons per silage acre			
Silage storage area	=	0.39	acres (actual storage area)			
Silage Leachate Seepage Volume	SUBTOTAL	=	8,385	ft ³	SUBTOTAL	(gals) 62,720

Annual Manure Generation (excluding 100 year storm volume)	(gals)	4,506,321
Average Daily Generation per day	gals	12,346

4. Total Days Liquid Manure Storage Provided

Existing Pit #1 & #2 (from 2011 CNMP)	1,200,000	gal	
Storage days	97	days	
Proposed Manure Pond	0	gallons	
Storage days	0	days	
	97	Total days	

Solid manure

Cattle type	c.f./animal/day	x No. of animals	x Storage Period(days)	=	Total Manure		
Heifer	0.7	320	365	=	81,760	(cu.ft.)	81,760
Bedding	0.35	320	365	=	40,880	(cu.ft.)	40,880
					In situ composting reduction	33%	(cu.ft.) -13,490
					Total		(cu.ft.) 109,150

Manure solids lbs/cu.ft.	56	tons	3,056
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Falling Star Farm, LLC **3-Apr-18**
MANURE TEST SUMMARY **C 7.10**

Current No. Cows **475**
Permitted No. Cows **475**

Liquid Manure: Manure Ponds

Date Reported	Sample Location	Sample Description	Lab Number	Moisture (%)	Total Nitrogen (lbs/1000)	Ammonia-N (NH4-N) (lbs/1000)	Organic-N (lbs/1000)	Phosphorous as P2O5 (lbs/1000)	Potassium as K2O (lbs/1000)
6/13/2017	MVD	Dairy Liquid-Pond #1	FF43706	98.43	9.6	3.5	6.1	5.2	12.2
6/13/2017	MVD	Dairy Liquid-Pond #1	FF43707	98.06	9.6	3.5	6.1	4.4	13.0
11/3/2017	MVD	Dairy Liquid-Pond #1	FF44794	97.1	7.8	2.6	5.2	6.1	13.0
Average =				97.86	9.00	3.20	5.80	5.23	12.73

Annual amounts = 40,557 14,420 26,137 23,583 57,380

Total volume predicted = 4,506,321 gallons annually*

* Extrapolated to permitted number of cows.

Solid Manures

Date Reported	Sample Location	Sample Description	Lab Number	Moisture (%)	Total Nitrogen (lbs/ton)	Ammonia-N (NH4-N) (lbs/ton)	Organic-N (lbs/ton)	Phosphorous as P2O5 (lbs/ton)	Potassium as K2O (lbs/ton)
11/3/2017	MVD	Sand Manure	FF44796	13.44	2.20	0.40	1.80	2.20	2.40
Average =				13.44	2.20	0.40	1.80	2.20	2.40

Annual amounts = 6,724 1,222 5,501 6,724 7,335

Total volume predicted = 3,056 tons annually*

* Extrapolated to permitted number of cows.

109,150 c.f. with a bulk density of 56 lbs/c.f.

Percent distributed 49%

Annual amounts = 3,295 599 2,696 3,295 3,594

Falling Star Annual Generation Information

Year	Total Animal Equivalents	Solids			Liquid		
		Total Solids Generated, annual tons	Avg/Cow/Year tons	lbs/cow/day	Total Liquid Generation	Avg/Cow/Year gallons	gallons/cow/day
2013	475	2,921	6.15	33.70	6,800,000	14,316	39.22
2014	475	2,921	6.15	33.70	6,800,000	14,316	39.22
2015	475	2,921	6.15	33.70	6,800,000	14,316	39.22
2016	475	2,921	6.15	33.70	6,800,000	14,316	39.22
AVERAGE	475	2,921	6.15	33.70	6,800,000	14,316	39.22

All Manures

	Total Nitrogen (lbs/ton)	Ammonia-N (NH4-N) (lbs/ton)	Organic-N (lbs)	Phosphorous as P2O5 (lbs)	Potassium as K2O (lbs)
Total nutrients all manures =	47,281	15,643	31,638	30,307	64,715
Total nutrients all manures exported =	3,295	599	2,696	3,295	3,594
Net nutrients for controlled use =	43,986	15,044	28,942	27,012	61,121

Falling Star Farm, LLC

PART C 7.12

Manure Nutrient Analysis: Manure Storage Ponds

C7.11

(actual and/or estimated):	Miami Valley Dairy Storage Pond		
Lab no. if actual sample(1):	Ave. 3 Samples		
Date of sample:	2017		
Solids %	2.14%		
Tot. N per 1000 gal	9.00		
Ammonia N per 1000 gal	3.20	55%	Avail. Ammonia-N (5)
Organic N per 1000 gal	5.80	29%	Avail. Organic-N (5)
Avail. N per 1000 gal	3.47		
N avail. % (after land application)	38.5%		
P2O5 per 1000 gal	5.23		
K2O per 1000 gal	12.73		
Manure volume used in plan (gallons) (2)	4,506,321		

APPLICATION RATES (6):	LIQUID MANURE	97.9%	moisture basis	
	Gallons/acre (as-is)	Avail. Nitrogen/a (5)	Phosphate/a (6)	Potash/a
1x P crop removal rate whole rotation =	14,781	51.2	77.4	188.2
1x P crop removal rate corn silage =	14,217	49.3	74.4	181.0
1x P crop removal rate alfalfa =	14,904	51.6	78.0	189.8
1x P crop removal rate corn grain/soybeans 2 yr. (7) =	15,287	53.0	80.0	194.6
Acres needed for P maintenance, whole rotation =	305			

- (1) Manure sample from dairy facility, reference C 7.10.
 (2) Manure and wastewater volume extrapolated from facility records.
 (3) Soybean N application rate not to exceed 150 lb/acre.
 (4) Standard rate chosen for planning purposes only (2x P for at least every other year applications), not a recommendation nor one time application.
 (5) Ave. April-November application period, incorp. manure.
 N Avail. factors from Appendix C Table 6 901:10-2-14
 (6) Not to exceed 250 lb/a P2O5 per year.
 (7) P removal based upon 1 year of corn followed by 1 year of soybeans (2 yr. production).

Falling Star Farm, LLC

Manure Nutrient Analyses: Solid Manure

C7.11

PART C 7.13

Solid Manure Analysis (actual):	Miami Valley Dairy Solid Manure	N Avail. Factors	
Lab no. if actual sample(1):	FF44796	Appendix C Table 6	
Date of sample:	11/3/2017	901:10-2-14	
Solids %	86.6%		
Tot. N per ton	2.20		
Ammonia N per ton	0.40	55%	Avail. Ammonia-N (5)
Organic N per ton	1.8	29%	Avail. Organic-N (5)
Avail. N per ton	0.75		
N avail. % (after land application)	34.1%		
P2O5 per ton	2.20		
K2O per ton	2.40		
Manure volume used in plan (tons)	3,056	(2)	

APPLICATION RATES (6):	SOLID MANURE	13.4%	moisture basis	
	Tons/acre (as-is)	Avail. Nitrogen/a (5)	Phosphate/a (6)	Potash/a
1x P crop removal rate whole rotation =	35.2	26.3	77.4	84.4
Standard rate annual rate chosen (3,4) =	47.0	35.2	103.4	112.8
Acres needed for rate chosen =	65.0			

- (1) Manure sample from dairy facility, reference C 7.10.
- (2) Manure volume extrapolated from facility records.
- (3) Soybean N application rate not to exceed 150 lb/acre.
- (4) Standard rate chosen for planning purposes only (2x P for at least every other year applications for corn/soybeans), not a recommendation nor one time application.
- (5) Ave. April-November application period, incorp. manure.
N Avail. factors from Appendix C Table 6 901:10-2-14
- (6) Total phosphate application rate not to exceed 250 lbs/acre/year.

NUTRIENT BALANCE EVALUATOR

ver. 11123

FACILITY: **Falling Star Farm, LLC** ROTATION PLANNER **PART C 6.1** **AVAILABLE CROPS**

	CORN SILAGE	SOYBEANS	ALFALFA	CORN GRAIN	WHEAT	STRAW
ESTIMATED YIELD (5) =	24.0	50	6	175	70	70
yield unit =	tons/a	bu/a	tons/a (8)	bu/a	bu/a	bu/a
ACRES/YEAR of CROP IN ROTATION (7) =	192.7	64.2	163.8	51.4	61.9	61.9
ACRES/YEAR PRECEDED BY LEGUME (6) =	41			44.1		
NITROGEN CREDIT PRIOR LEGUME (1) =	75			30		
NITROGEN RECOMMENDATION/ACRE (2) =	211			211	90	
NET NITROGEN RECOMMENDATION/ACRE (3) =	136			181		
NITROGEN REMOVED/UNIT/YEAR (4) =	9	3.8	56	0.9	1.27	0.55
NITROGEN REMOVED/ACRE/YEAR =	216.0	190.0	336.0	157.5	89.1	38.2
P2O5 REMOVAL/UNIT/YEAR (4) =	3.1	0.8	13	0.37	0.64	0.09
P2O5 REMOVAL/ACRE/YEAR =	74.4	40.0	78.0	64.8	44.8	6.3
K2O REMOVAL/UNIT/YEAR (4) =	9	1.4	50	0.27	0.36	0.91
K2O REMOVAL/ACRE/YEAR =	216.0	70.0	300.0	47.3	25.2	63.7

Total usable acres in rotation = **534.0** acres

Total N utilized annually =	142,635	lbs/year
Total legume N removed annually =	67,228	lbs/year
Total P2O5 removed annually =	41,306	lbs/year
Total K2O removed annually =	128,215	lbs/year
ave. removal =	77.4	lbs/a/year P2O5
ave. removal =	240.1	lbs/a/year K2O

Note (1): Base upon Appendix C Table 4 for rule 901:10-2-14, Residual Nitrogen credits

N credits: Soybeans	30
Grass sod/pastures	40
Annual legume cover crop	30
Established forage legume 40 + 20 x (plants/ft ²)	
to maximum of 140 lb. of N	alfalfa rotated to corn, use 75 lb N credit
Corn and most other crops	0

Note (2): Based upon Appendix C Tables 2 & 3 of rule 901:10-2-14, does NOT take into consideration previous crop or organic N addition.

Corn: N (lb/acre) = -27 + (1.36 x yield potential) - N credit

Note (3): INCLUDES Nitrogen credit for prior legume.

Note (4): From Appendix C Table 1 of rule 901:10-2-14: ref. Table 4.

Note (5): From yield histories of controlled farms identified in MMP.

Note (6): Assume 1/4 of alfalfa acres are rotated to corn annually.

Note (7): Average acres anticipated planted to each crop during the 5-year permit period. Triticale/rye typically rotated after corn silage, and then planted back to corn silage after harvest.

Note (8): Alfalfa yield is calculated on a 15% DM basis from a 23 T/a as-is basis @ 50% DM.

CROP ROTATION & NUTRIENT BALANCE: Falling Star Farm, LLC
DATE: 4/3/2018

C 6.2

	Pond Manure	Solid Manure
Standard application rate chosen (1)	23,732	47.0
	gallons/acre	tons/acre
Total manure distributed off farm	0%	49%
Total manure to apply/yr.	4,506,321	3,056
Total manure applied/yr	4,506,321	1,571
	gallons	tons

gallons/acre

1x P crop removal rate whole rotation =

1x P crop removal rate corn silage =

1x P crop removal rate alfalfa =

1x P crop removal rate corn grain/soybeans 2 yr. =

Crop Rotation	CORN SILAGE	CORN GRAIN	SOYBEANS	ALFALFA	WHEAT	STRAW
acres of crop/year	193	51	64	164	62	62
Manure solids manure prior rate, tons/acre/year (2)	47.0	16.0	-	-	-	-
Manure solids manure acres covered/year	-	98.1	-	-	-	-
Pond manure rate prior to crop, gallons/acre/ year (2)	14,217	15,287	-	14,904	-	-
Pond manure acres covered/year	193	51	-	65.9	-	-
total manure P2O5 applied per year	14,359	4,080	-	8,599	-	-
ave. manure P2O5 lbs/a (total crop)/year	74.4	80	-	52	-	-
total manure K2O applied per year	34,938	9,927	-	16,285	-	-
ave. manure K2O lbs/a (total crop)/year	181	195	-	99	-	-
P2O5 lbs/acre removed/year	74.4	65	40.0	78	44.8	6.3
annual total lbs. P2O5 removed	14,340	3,329	2,567	12,775	2,772	390
K2O lbs/acre removed/year	216.0	47	70.0	300	25.2	63.7
annual total lbs. K2O removed	41,631	2,429	4,493	49,136	1,559	3,942
Annual +/- P2O5	20	751	(2,567)	(4,176)	(2,772)	(390)
Annual +/- K2O	(6,694)	7,498	(4,493)	(32,851)	(69,161)	(3,942)
Total Rotation years =	1					D&U
Total Acres applied =	408.0					Liquid
Total usable acres in rotation available in plan =	534.0					Solid
Total Acres not eligible for spreading (soil test P > 150 ppm) =	65.9					1,486
Total acres limited to maintenance (1x P) only	189.7					gallons
(Soil Test P>100 ppm <150 ppm) =	344.3					tons
Net maintenance P+ acres that can be applied (<100 ppm) =						

PER ROTATION BASIS

Lbs. P2O5 Applied from Manure	27,038	
Lbs K2O Applied from Manure	61,150	
Lbs. P2O5 Removed	(36,173)	(4)
Lbs. K2O Removed	(103,191)	(4)
Net P2O5/acre after full rotation =	(17)	(5)
Net K2O/acre after full rotation =	(79)	(6)

NOTES

1. For planning purposes only, ref. C 7.12, C 7.13
3. All acres available in rotation: if all manure distributed equally over all available acres during rotation.
4. reference C 6.1
5. Depending on soil tests and application rates chosen, additional phosphate may have to be added during the full rotation.
6. Depending on soil tests and application rates chosen, additional potash may have to be added during the full rotation.

C6.3

P-SOIL TEST EVALUATION

NOTES:

- (1) Based upon NRCS Conservation Practice Standard Code 633, Table 3.
- (2) Farmed acreage where P soil test levels \leq 150 ppm (Mehlich III).
- (3) No manure to be applied to those field areas where P levels $>$ 150 ppm (Mehlich III).
- (4) Manure limited to P removal to those field areas where P levels $>$ 100 ppm.
- (5) Fields rated HIGH due to presence of systematic tile.
- (6) Assumes all manure P is spread on all usable acres equally on average during rotation.

FACILITY: **Falling Star Farm, LLC**

DATE: **4/3/2018**

CRITICAL UPPER SOIL TEST LEVEL, ppm-P (3) $>$ **150**
INTERMEDIATE SOIL TEST LEVEL, ppm-P (4) $>$ **100**

Ave. rotational lbs. phosphorus/acre/yr. crop removal = **33.6** as P
Ave. rotational lbs. phosphorus/acre/yr. crop removal = **77.1** as P2O5

Total usable rotation acres (2) = **534.0**
Total unusable rotation acres (3) = **65.9**
Total full application (2x P+) rate acres available = **344.3**
Total maintenance P limited application rate acres (4) = **189.7**

Ave. manure phosphorus addition/acre/year (6) = **22.0** as P
Ave. manure phosphorus addition/acre/year (6) = **50.4** as P2O5

SOIL TEST INFORMATION

Test Date	Sample ID	Field Area	Mehlich III or Bray 1 ppm-P	Predicted Soil Test Levels (1,6)		ACRES	APPROX. UNUSABLE ACRES (3)	APPROX. LIMITED RATE ACRES (4)	Nitrogen Leaching Index Rating Potential (5)
				Full Rotational Length of 1 years Soil Test ppm-P if manure applied @ P2O5 lbs/ac =	Permit Duration Length of 5 years Soil Test ppm-P if manure applied @ P2O5 lbs/ac =				
				50.4	50.4				
2/23/2018	MB1		104.0	102.5	96.7	17.1	0	17.1	HIGH
2/23/2018	M35		143.0	141.5	135.7	26.3	0	26.3	HIGH
2/23/2018	MSBF1		102.0	100.5	94.7	21.2	0	21.2	HIGH
2/23/2018	620WS89		88.0	86.5	80.7	21.0	0	0.0	HIGH
2/23/2018	620ESS		149.0	147.5	141.7	22.8	0	22.8	HIGH
2/23/2018	620NS89		35.0	33.5	27.7	23.3	0	0.0	HIGH
2/23/2018	NW16		10.0	8.5	2.7	9.4	0	0.0	HIGH
2/23/2018	ES89C1		113.0	111.5	105.7	18.3	0	18.3	HIGH
2/23/2018	HE1		156.0	151.8	135.0	24.6	24.6	0.0	HIGH
2/23/2018	MSESF1		153.0	148.8	132.0	25.6	25.6	0.0	HIGH
2/23/2018	620WNS		150.0	145.8	129.0	15.7	15.7	0.0	HIGH
2/23/2018	CNS1		96.0	94.5	88.7	45.9	0	0.0	HIGH
2/23/2018	CSE1		11.0	9.5	3.7	27.4	0	0.0	HIGH
2/23/2018	CSW1		6.0	4.5	-1.3	30.0	0	0.0	HIGH
2/23/2018	BCRS1		110.0	108.5	102.7	21.7	0	21.7	HIGH
2/23/2018	BNS1		90.0	88.5	82.7	19.6	0	0.0	HIGH
2/23/2018	HN1		104.0	102.5	96.7	29.5	0	29.5	HIGH
2/23/2018	G58E1		5.0	3.5	-2.3	31.3	0	0.0	HIGH
2/23/2018	29A		11.0	9.5	3.7	25.6	0	0.0	HIGH
2/23/2018	27A		102.0	100.5	94.7	12.7	0	12.7	HIGH
2/23/2018	JSE1		9.0	7.5	1.7	17.7	0	0.0	HIGH
2/23/2018	JMF1		97.0	95.5	89.7	20.8	0	0.0	HIGH
2/23/2018	JNE22		88.0	86.5	80.7	16.3	0	0.0	HIGH
2/23/2018	KFF40		148.0	146.5	140.7	20.1	0	20.1	HIGH
2/23/2018	KSF25		8.0	6.5	0.7	25.0	0	0.0	HIGH
2/23/2018	NGC1		9.0	7.5	1.7	11.2	0	0.0	HIGH
2/23/2018	NGWS1		5.0	3.5	-2.3	19.8	0	0.0	HIGH
Total acres =						599.9	65.9	189.7	

ATTACHMENT E

Inspections

Ohio EPA CAFO NPDES Permit Monitoring and Inspection Requirements

Action	Frequency	Record Keeping Requirements
Collection of water quality samples from discharges from the production area. Samples should be analyzed for BOD5, ammonia, and total phosphorus.	Each time they occur.	Date, exact place, and time of sampling or measurements; b) the initials or name(s) of the individual(s) who performed the sampling or measurements; c) the date(s) analyses were performed; d) the time(s) analyses were initiated; e) the initials or name(s) of the individual(s) who performed the analyses; f) references and written procedures, when available, for the analytical techniques or methods used; and g) the results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results. Please note that most of these records are included on the sample result sheets from the laboratory.
For new CAFOs (and existing CAFOs on and after April 1, 2007), collection of water quality samples from discharges from land application areas where manure was applied on frozen and/or snow covered ground. Samples should be analyzed for ammonia.	Each time they occur.	Same records for production area discharge samples listed above.
Recording of all discharges from production and land application areas in the operating records.	Each time they occur.	Cause, volume, and duration of the discharge and any corrective actions needed and the dates those actions were taken. Also maintain a copy of the report submitted to Ohio EPA.
Collection of water quality discharges from storm water ponds. Samples should be analyzed for BOD5, ammonia, TKN, and total phosphorus.	Twice per year in March and November.	Same records for production area discharge samples listed above.
Collection of representative manure samples for all manure storage or treatment structures. Samples should be analyzed for total nitrogen, ammonium nitrogen, organic nitrogen, phosphorus, potassium, and percent total solids.	Once per year.	Same records for production area discharge samples listed above.
Collection of soil samples of the manure application fields. Samples should be analyzed for pH, phosphorus, potassium, calcium, magnesium and cation exchange capacity.	Every three years.	Collection site and depth of sample. Same records for production area discharge samples listed above.
Monitor operating level of all manure storage or treatment facilities.	Once per week.	Date and time of observation, manure level in each structure.
Inspect manure storage or treatment facilities, including devices channeling contaminated storm water to the manure storage or treatment facility for evidence of erosion, leakage, animal damage, overflow, or discharge.	Once per week.	Date and time of inspection, structural integrity, vegetation condition, and any corrective actions needed and the dates those actions were taken.
Inspect storm water diversion devices or runoff diversion structures.	Once per week.	Date and time of inspection, observations of flow quantity and color, structural integrity (e.g., signs of cracks, sparse or stressed vegetation, erosion, etc.), any corrective actions needed and the dates those actions were taken.
Inspect drinking and cooling water lines that are located above ground, readily visible or accessible for daily inspections.	Daily.	Date and time of inspection, number of leaks, any corrective actions needed and the dates those actions were taken.
Monitor forecast at the CAFO location.	Every land application event.	Date, weather conditions (including percentage chance of precipitation) 24 hours prior to application, at the time of application, and 24 hours after application.
Inspect land application fields.	In accordance with manure management plan.	Date and signs of discharge or runoff into surface waters and/or conduits to surface waters of the State.
Inspect land application equipment.	In accordance with manure management plan.	List of equipment, date of inspections, corrective actions, calibration dates.

Any deficiencies found as a result of these inspections must be corrected as soon as possible. Deficiencies not corrected within 30 days must be accompanied by an explanation of the factors preventing immediate correction.

ATTACHMENT F
Field Maps & Soil Tests

[illegible]

[illegible]

Report Number
F18052-0047
Account Number
15635



3505 Conestoga Dr.
Fort Wayne, IN 46808
260.483.4759
algreatlakes.com

To: CENTERRA CO-OP
Personal Privacy/Ex. 6
SULLIVAN, OH 44880

For: FALLING STAR
Farm: Personal Privacy/Ex. 6 EAST
Field: 25A

Attn: Personal Privacy/Ex. 6

SOIL TEST REPORT

Date Received: 2/21/2018

Date Reported: 2/23/2018

Page: 1 of 1

Sample ID	Lab Number	Organic Matter %	Phosphorus		Potassium K lb/A	Magnesium Mg lb/A	Calcium Ca lb/A	Sodium Na lb/A	Soil pH	Buffer pH	CEC meq/100g	Percent Cation Saturation				
			Bray-1 Equiv lb/A	Bray P2 lb/A								% K	% Mg	% Ca	% H	% Na
HE1	52893	5.7	312 VH		748 VH	620 H	3000 M		7.3		11.0	8.7	23.4	67.9		

VL = Very Low L = Low M = Medium H = High VH = Very High

Sample ID	Sulfur S lb/A	Zinc Zn lb/A	Manganese Mn lb/A	Iron Fe lb/A	Copper Cu lb/A	Boron B lb/A	Soluble Salts (1:2) mmhos/cm	Nitrate NO ₃ -N lb/A	Ammonium NH ₄ -N lb/A	Bicarb-P P lb/A				Comments
HE1														lb/A = ppm x 2

Report Number
F18052-0045
Account Number
15635



3505 Conestoga Dr.
Fort Wayne, IN 46808
260.483.4759
algreatlakes.com

To: CENTERRA CO-OP
Personal Privacy/Ex. 6
SULLIVAN, OH 44880

For: FALLING STAR
Farm: MIDDLE SECTION
Field: PERSONAL FIELD 25A

Date Received: 2/21/2018
Date Reported: 2/23/2018
Page: 1 of 1

Attn: Personal Privacy/Ex. 6

SOIL TEST REPORT

Sample ID	Lab Number	Organic Matter %	Phosphorus		Potassium K lb/A	Magnesium Mg lb/A	Calcium Ca lb/A	Sodium Na lb/A	Soil pH	Buffer pH	CEC meq/100g	Percent Cation Saturation				
			Bray-1 Equiv lb/A	Bray P2 lb/A								% K	% Mg	% Ca	% H	% Na
MSBF1	52891	4.2	204 VH		522 VH	550 H	2500 M		6.8		9.5	7.0	24.1	65.8	3.0	

VL = Very Low L = Low M = Medium H = High VH = Very High

Sample ID	Sulfur S lb/A	Zinc Zn lb/A	Manganese Mn lb/A	Iron Fe lb/A	Copper Cu lb/A	Boron B lb/A	Soluble Salts (1:2) mmhos/cm	Nitrate NO ₃ -N lb/A	Ammonium NH ₄ -N lb/A	Bicarb-P P lb/A				Comments
MSBF1														lb/A = ppm x 2

Report Number
F18052-0052
Account Number
15635



3505 Conestoga Dr.
Fort Wayne, IN 46808
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To: CENTERRA CO-OP
Personal Privacy/Ex. 6
SULLIVAN, OH 44880

For: FALLING STAR
Farm: Personal Privacy/Ex. 6
Field: 25A

Attn: Personal Privacy/Ex. 6

SOIL TEST REPORT

Date Received: 2/21/2018

Date Reported: 2/23/2018

Page: 1 of 1

Sample ID	Lab Number	Organic Matter %	Phosphorus		Potassium K lb/A	Magnesium Mg lb/A	Calcium Ca lb/A	Sodium Na lb/A	Soil pH	Buffer pH	CEC meq/100g	Percent Cation Saturation				
			Bray-1 Equiv lb/A	Bray P2 lb/A								% K	% Mg	% Ca	% H	% Na
EVER1	52898	7.6	234 VH		642 VH	850 H	4100 M		6.0	6.7	18.2	4.5	19.4	56.3	19.8	

VL = Very Low L = Low M = Medium H = High VH = Very High

Sample ID	Sulfur S lb/A	Zinc Zn lb/A	Manganese Mn lb/A	Iron Fe lb/A	Copper Cu lb/A	Boron B lb/A	Soluble Salts (1:2) mmhos/cm	Nitrate NO ₃ -N lb/A	Ammonium NH ₄ -N lb/A	Bicarb-P P lb/A				Comments
EVER1														lb/A = ppm x 2

Report Number
F18052-0051
Account Number
15635



3505 Conestoga Dr.
Fort Wayne, IN 46808
260.483.4759
algreatlakes.com

To: CENTERRA CO-OP
Personal Privacy/Ex. 6
SULLIVAN, OH 44880

For: FALLING STAR
Farm: Personal Privacy/Ex. 6
Field: 58 EAST 35A

Attn: Personal Privacy/Ex. 6

SOIL TEST REPORT

Date Received: 2/21/2018

Date Reported: 2/23/2018

Page: 1 of 1

Sample ID	Lab Number	Organic Matter %	Phosphorus		Potassium K lb/A	Magnesium Mg lb/A	Calcium Ca lb/A	Sodium Na lb/A	Soil pH	Buffer pH	CEC meq/100g	Percent Cation Saturation				
			Bray-1 Equiv lb/A	Bray P2 lb/A								% K	% Mg	% Ca	% H	% Na
G58E1	52897	2.4	10 VL		150 M	230 H	800 VL		5.2	6.8	5.6	3.5	17.3	36.0	43.2	

VL = Very Low L = Low M = Medium H = High VH = Very High

Sample ID	Sulfur S lb/A	Zinc Zn lb/A	Manganese Mn lb/A	Iron Fe lb/A	Copper Cu lb/A	Boron B lb/A	Soluble Salts (1:2) mmhos/cm	Nitrate NO ₃ -N lb/A	Ammonium NH ₄ -N lb/A	Bicarb-P P lb/A				Comments
G58E1														lb/A = ppm x 2

Report Number
F18052-0053
Account Number
15635



3505 Conestoga Dr.
Fort Wayne, IN 46808
260.483.4759
algreatlakes.com

To: CENTERRA CO-OP
Personal Privacy/Ex. 6
SULLIVAN, OH 44880

For: FALLING STAR
Farm: Personal Privacy/Ex. 6 GROUND
Field: 25A CENTER

Date Received: 2/21/2018
Date Reported: 2/23/2018
Page: 1 of 1

Attn: Personal Privacy/Ex. 6

SOIL TEST REPORT

Sample ID	Lab Number	Organic Matter %	Phosphorus		Potassium K lb/A	Magnesium Mg lb/A	Calcium Ca lb/A	Sodium Na lb/A	Soil pH	Buffer pH	CEC meq/100g	Percent Cation Saturation				
			Bray-1 Equiv lb/A	Bray P2 lb/A								% K	% Mg	% Ca	% H	% Na
NGC1	52899	2.7	18 VL		206 M	240 H	800 VL		5.3	6.8	5.7	4.7	17.7	35.3	42.4	

VL = Very Low L = Low M = Medium H = High VH = Very High

Sample ID	Sulfur S lb/A	Zinc Zn lb/A	Manganese Mn lb/A	Iron Fe lb/A	Copper Cu lb/A	Boron B lb/A	Soluble Salts (1:2) mmhos/cm	Nitrate NO ₃ -N lb/A	Ammonium NH ₄ -N lb/A	Bicarb-P P lb/A				Comments
NGC1														lb/A = ppm x 2

Report Number
F18052-0054
Account Number
15635



3505 Conestoga Dr.
Fort Wayne, IN 46808
260.483.4759
algreatlakes.com

To: CENTERRA CO-OP
Personal Privacy/Ex. 6
SULLIVAN, OH 44880

For: FALLING STAR
Farm: Personal Privacy/Ex. 6 GROUND
Field: 25A WEST SIDE

Attn: Personal Privacy/Ex. 6

SOIL TEST REPORT

Date Received: 2/21/2018

Date Reported: 2/23/2018

Page: 1 of 1

Sample ID	Lab Number	Organic Matter %	Phosphorus		Potassium K lb/A	Magnesium Mg lb/A	Calcium Ca lb/A	Sodium Na lb/A	Soil pH	Buffer pH	CEC meq/100g	Percent Cation Saturation				
			Bray-1 Equiv lb/A	Bray P2 lb/A								% K	% Mg	% Ca	% H	% Na
NGWS1	52900	2.3	10 VL		138 M	230 H	600 VL		5.2	6.8	5.0	3.5	19.0	29.8	47.7	

VL = Very Low L = Low M = Medium H = High VH = Very High

Sample ID	Sulfur S lb/A	Zinc Zn lb/A	Manganese Mn lb/A	Iron Fe lb/A	Copper Cu lb/A	Boron B lb/A	Soluble Salts (1:2) mmhos/cm	Nitrate NO ₃ -N lb/A	Ammonium NH ₄ -N lb/A	Bicarb-P P lb/A				Comments
NGWS1														lb/A = ppm x 2

Report Number
F18052-0061
Account Number
15635



3505 Conestoga Dr.
Fort Wayne, IN 46808
260.483.4759
algreatlakes.com

To: CENTERRA CO-OP
Personal Privacy/Ex. 6
SULLIVAN, OH 44880

For: FALLING STAR
Farm: 655-601 SOUTH
Field: SOUTH 26A

Attn: Personal Privacy/Ex. 6

SOIL TEST REPORT

Date Received: 2/21/2018

Date Reported: 2/23/2018

Page: 1 of 1

Sample ID	Lab Number	Organic Matter %	Phosphorus		Potassium K lb/A	Magnesium Mg lb/A	Calcium Ca lb/A	Sodium Na lb/A	Soil pH	Buffer pH	CEC meq/100g	Percent Cation Saturation				
			Bray-1 Equiv lb/A	Bray P2 lb/A								% K	% Mg	% Ca	% H	% Na
66S1	52909	7.7	212 VH		810 VH	1110 H	5100 M		6.7	6.9	19.6	5.3	23.6	65.0	6.1	

VL = Very Low L = Low M = Medium H = High VH = Very High

Sample ID	Sulfur S lb/A	Zinc Zn lb/A	Manganese Mn lb/A	Iron Fe lb/A	Copper Cu lb/A	Boron B lb/A	Soluble Salts (1:2) mmhos/cm	Nitrate NO ₃ -N lb/A	Ammonium NH ₄ -N lb/A	Bicarb-P P lb/A				Comments
66S1														lb/A = ppm x 2

Report Number
F18052-0062
Account Number
15635



3505 Conestoga Dr.
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260.483.4759
algreatlakes.com

To: CENTERRA CO-OP
Personal Privacy/Ex. 6
SULLIVAN, OH 44880

For: FALLING STAR
Farm: 655-601 NORTH
Field: NORTH 26A

Date Received: 2/21/2018

Date Reported: 2/23/2018

Page: 1 of 1

Attn: Personal Privacy/Ex. 6

SOIL TEST REPORT

Sample ID	Lab Number	Organic Matter %	Phosphorus		Potassium K lb/A	Magnesium Mg lb/A	Calcium Ca lb/A	Sodium Na lb/A	Soil pH	Buffer pH	CEC meq/100g	Percent Cation Saturation				
			Bray-1 Equiv lb/A	Bray P2 lb/A								% K	% Mg	% Ca	% H	% Na
66N1	52910	7.4	196 VH		736 VH	1050 H	4600 M		6.7	6.9	18.0	5.2	24.3	63.8	6.7	

VL = Very Low L = Low M = Medium H = High VH = Very High

Sample ID	Sulfur S lb/A	Zinc Zn lb/A	Manganese Mn lb/A	Iron Fe lb/A	Copper Cu lb/A	Boron B lb/A	Soluble Salts (1:2) mmhos/cm	Nitrate NO ₃ -N lb/A	Ammonium NH ₄ -N lb/A	Bicarb-P P lb/A				Comments
66N1														lb/A = ppm x 2

Report Number
F18052-0060
Account Number
15635



3505 Conestoga Dr.
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algreatlakes.com

To: CENTERRA CO-OP
Personal Privacy/Ex. 6
SULLIVAN, OH 44880

For: FALLING STAR
Farm: 251 & 1080
Field: 47A

Attn: **Personal Privacy/Ex. 6**

SOIL TEST REPORT

Date Received: 2/21/2018

Date Reported: 2/23/2018

Page: 1 of 1

Sample ID	Lab Number	Organic Matter %	Phosphorus		Potassium K lb/A	Magnesium Mg lb/A	Calcium Ca lb/A	Sodium Na lb/A	Soil pH	Buffer pH	CEC meq/100g	Percent Cation Saturation				
			Bray-1 Equiv lb/A	Bray P2 lb/A								% K	% Mg	% Ca	% H	% Na
2511080	52908	2.4	24 L		178 M	270 H	1000 VL		5.2	6.7	7.5	3.1	15.1	33.5	48.3	

VL = Very Low L = Low M = Medium H = High VH = Very High

Sample ID	Sulfur S lb/A	Zinc Zn lb/A	Manganese Mn lb/A	Iron Fe lb/A	Copper Cu lb/A	Boron B lb/A	Soluble Salts (1:2) mmhos/cm	Nitrate NO ₃ -N lb/A	Ammonium NH ₄ -N lb/A	Bicarb-P P lb/A				Comments
2511080														lb/A = ppm x 2

Report Number
F18052-0068
Account Number
15635



3505 Conestoga Dr.
Fort Wayne, IN 46808
260.483.4759
algreatlakes.com

To: CENTERRA CO-OP
Personal Privacy/Ex. 6
SULLIVAN, OH 44880

For: FALLING STAR
Farm: 620 WEST NORTH SIDE
Field: 16A

Attn: **Personal Privacy/Ex. 6**

SOIL TEST REPORT

Date Received: 2/21/2018

Date Reported: 2/23/2018

Page: 1 of 1

Sample ID	Lab Number	Organic Matter %	Phosphorus		Potassium K lb/A	Magnesium Mg lb/A	Calcium Ca lb/A	Sodium Na lb/A	Soil pH	Buffer pH	CEC meq/100g	Percent Cation Saturation				
			Bray-1 Equiv lb/A	Bray P2 lb/A								% K	% Mg	% Ca	% H	% Na
620WNS	52917	5.2	300 VH		762 VH	620 H	2800 M		7.1		10.6	9.3	24.5	66.3		

VL = Very Low L = Low M = Medium H = High VH = Very High

Sample ID	Sulfur S lb/A	Zinc Zn lb/A	Manganese Mn lb/A	Iron Fe lb/A	Copper Cu lb/A	Boron B lb/A	Soluble Salts (1:2) mmhos/cm	Nitrate NO ₃ -N lb/A	Ammonium NH ₄ -N lb/A	Bicarb-P P lb/A				Comments
620WNS														lb/A = ppm x 2

Report Number
F18052-0073
Account Number
15635



3505 Conestoga Dr.
Fort Wayne, IN 46808
260.483.4759
algreatlakes.com

To: CENTERRA CO-OP
Personal Privacy/Ex. 6
SULLIVAN, OH 44880

For: FALLING STAR
Farm: NORTH WEST 16A
Field: 16A

Attn: **Personal Privacy/Ex. 6**

SOIL TEST REPORT

Date Received: 2/21/2018

Date Reported: 2/23/2018

Page: 1 of 1

Sample ID	Lab Number	Organic Matter %	Phosphorus		Potassium K lb/A	Magnesium Mg lb/A	Calcium Ca lb/A	Sodium Na lb/A	Soil pH	Buffer pH	CEC meq/100g	Percent Cation Saturation				
			Bray-1 Equiv lb/A	Bray P2 lb/A								% K	% Mg	% Ca	% H	% Na
NW16	52922	2.3	20 L		156 M	220 H	700 VL		5.2	6.8	5.3	3.8	17.4	33.2	45.6	

VL = Very Low L = Low M = Medium H = High VH = Very High

Sample ID	Sulfur S lb/A	Zinc Zn lb/A	Manganese Mn lb/A	Iron Fe lb/A	Copper Cu lb/A	Boron B lb/A	Soluble Salts (1:2) mmhos/cm	Nitrate NO ₃ -N lb/A	Ammonium NH ₄ -N lb/A	Bicarb-P P lb/A				Comments
NW16														lb/A = ppm x 2

Report Number
F18052-0076
Account Number
15635



3505 Conestoga Dr.
Fort Wayne, IN 46808
260.483.4759
algreatlakes.com

To: CENTERRA CO-OP
Personal Privacy/Ex. 6
SULLIVAN, OH 44880

For: FALLING STAR
Farm: Personal Privacy/Ex. 6 SOUTH FIELD
Field: 25A SOUTH

Attn: Personal Privacy/Ex. 6

SOIL TEST REPORT

Date Received: 2/21/2018

Date Reported: 2/23/2018

Page: 1 of 1

Sample ID	Lab Number	Organic Matter %	Phosphorus		Potassium K lb/A	Magnesium Mg lb/A	Calcium Ca lb/A	Sodium Na lb/A	Soil pH	Buffer pH	CEC meq/100g	Percent Cation Saturation				
			Bray-1 Equiv lb/A	Bray P2 lb/A								% K	% Mg	% Ca	% H	% Na
KSF25	52927	2.4	16 VL		152 M	220 VH	400 VL		5.4	6.9	3.3	5.9	27.7	30.2	36.2	

VL = Very Low L = Low M = Medium H = High VH = Very High

Sample ID	Sulfur S lb/A	Zinc Zn lb/A	Manganese Mn lb/A	Iron Fe lb/A	Copper Cu lb/A	Boron B lb/A	Soluble Salts (1:2) mmhos/cm	Nitrate NO ₃ -N lb/A	Ammonium NH ₄ -N lb/A	Bicarb-P P lb/A					Comments
KSF25															lb/A = ppm x 2

Report Number
F18052-0075
Account Number
15635



3505 Conestoga Dr.
Fort Wayne, IN 46808
260.483.4759
algreatlakes.com

To: CENTERRA CO-OP
Personal Privacy/Ex. 6
SULLIVAN, OH 44880

For: FALLING STAR
Farm: Personal Privacy/Ex. 6 FRONT FIELD
Field: 40A 620 EAST

Attn: Personal Privacy/Ex. 6

SOIL TEST REPORT

Date Received: 2/21/2018

Date Reported: 2/23/2018

Page: 1 of 1

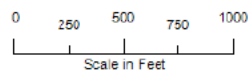
Sample ID	Lab Number	Organic Matter %	Phosphorus		Potassium K lb/A	Magnesium Mg lb/A	Calcium Ca lb/A	Sodium Na lb/A	Soil pH	Buffer pH	CEC meq/100g	Percent Cation Saturation				
			Bray-1 Equiv lb/A	Bray P2 lb/A								% K	% Mg	% Ca	% H	% Na
KFF40	52926	5.6	296 VH		754 VH	600 VH	2600 M		7.4		10.0	9.7	25.1	65.2		








VL = Very Low L = Low M = Medium H = High VH = Very High

Sample ID	Sulfur S lb/A	Zinc Zn lb/A	Manganese Mn lb/A	Iron Fe lb/A	Copper Cu lb/A	Boron B lb/A	Soluble Salts (1:2) mmhos/cm	Nitrate NO ₃ -N lb/A	Ammonium NH ₄ -N lb/A	Bicarb-P P lb/A				Comments
KFF40														lb/A = ppm x 2

Falling Star Farm, LLC
Land Application Field List
April 2018

Farm	Field Name	Sample ID	Report Number	Lab Number	Soil Sample Date	FSA Farm No.	FSA Tract No.
Personal Privacy	North Side 53A	CNS1	F18052-0048	52894	2/23/2018	4212 & 5953	1307 & 8634
Personal Privacy	South East 35A	CSE1	F18052-0049	52895	2/23/2018	4212	1307
Personal Privacy	South West 35A	CSW1	F18052-0050	52896	2/23/2018	4212	1307
Meadow Brook	25A	MB1	F18052-0044	52890	2/23/2018		
Personal Privacy	35A	M35	F18052-0077	52928	2/23/2018	480	1931
Middle Section	Big Field 25A	MSBF1	F18052-0045	52891	2/23/2018	4212	7078
620 West Side 89	South Side 25A	620WS89	F18052-0067	52916	2/23/2018	4212	7078
620 East side South 89	620E/S89	620ESS	F18052-0069	52918	2/23/2018	4212	7078
620 North Side 89	27A next to 620	620NS89	F18052-0070	52919	2/23/2018	4212	7078
North West 16A	16A	NW16	F18052-0073	52922	2/23/2018	4212	6220
East Side 89	25A Corner of 620	ES89C1	F18052-0056	52902	2/23/2018	4212	7078
Personal Privacy East	25A	HE1	F18052-0047	52893	2/23/2018	4212	7079
Middle Section East Side	Finks 25A	MSESF1	F18052-0046	52892	2/23/2018	4212	7079
620 West North Side	16A	620WNS	F18052-0068	52917	2/23/2018	4212	7079
Personal Privacy West	West	29A	F18052-0066	52914	2/23/2018		
Personal Privacy West	West	27A	F18052-0066	52915	2/23/2018		
Personal Privacy South East 25A	25A Next to 620	JSE1	F18052-0071	52920	2/23/2018	4209	1089
Personal Privacy Middle Field	25A New Ground	JMF1	F18052-0072	52921	2/23/2018	4209	1089
Personal Privacy North East	22A	JNE22	F18052-0074	52925	2/23/2018	4209	1089
Personal Privacy Front Field	40A 620 East	KFF40	F18052-0075	52926	2/23/2018	4849	7635
Personal Privacy South Field	25A South	KSF25	F18052-0076	52927	2/23/2018	4849	7635
Personal Privacy Ground	25A Center	NGC1	F18052-0053	52899	2/23/2018	4849	7635
Personal Privacy Ground	25A West Side	NGWS1	F18052-0054	52900	2/23/2018	4849	7635
Personal Privacy Co Rd 40	25A South Side	BCRS1	F18052-0057	52903	2/23/2018	3670	1540
Personal Privacy North Side	28A	BNS1	F18052-0058	52906	2/23/2018	3670	1540
Personal Privacy Nursery	35A	HN1	F18052-0059	52907	2/23/2018		
Personal Privacy	58 East 35A	G58E1	F18052-0051	52897	2/23/2018	3953	6983



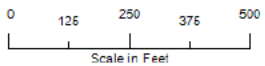
35 ft vegetated strip	
pond	
ditch or waterway	
well	
fields	
setbacks	
photo	



0 200 400 600 800
Scale in Feet



35 ft vegetated strip	
pond	
ditch or waterway	
well	
fields	
setbacks	
photo	



35 ft vegetated strip	
pond	
ditch or waterway	
well	
fields	
setbacks	
photo	

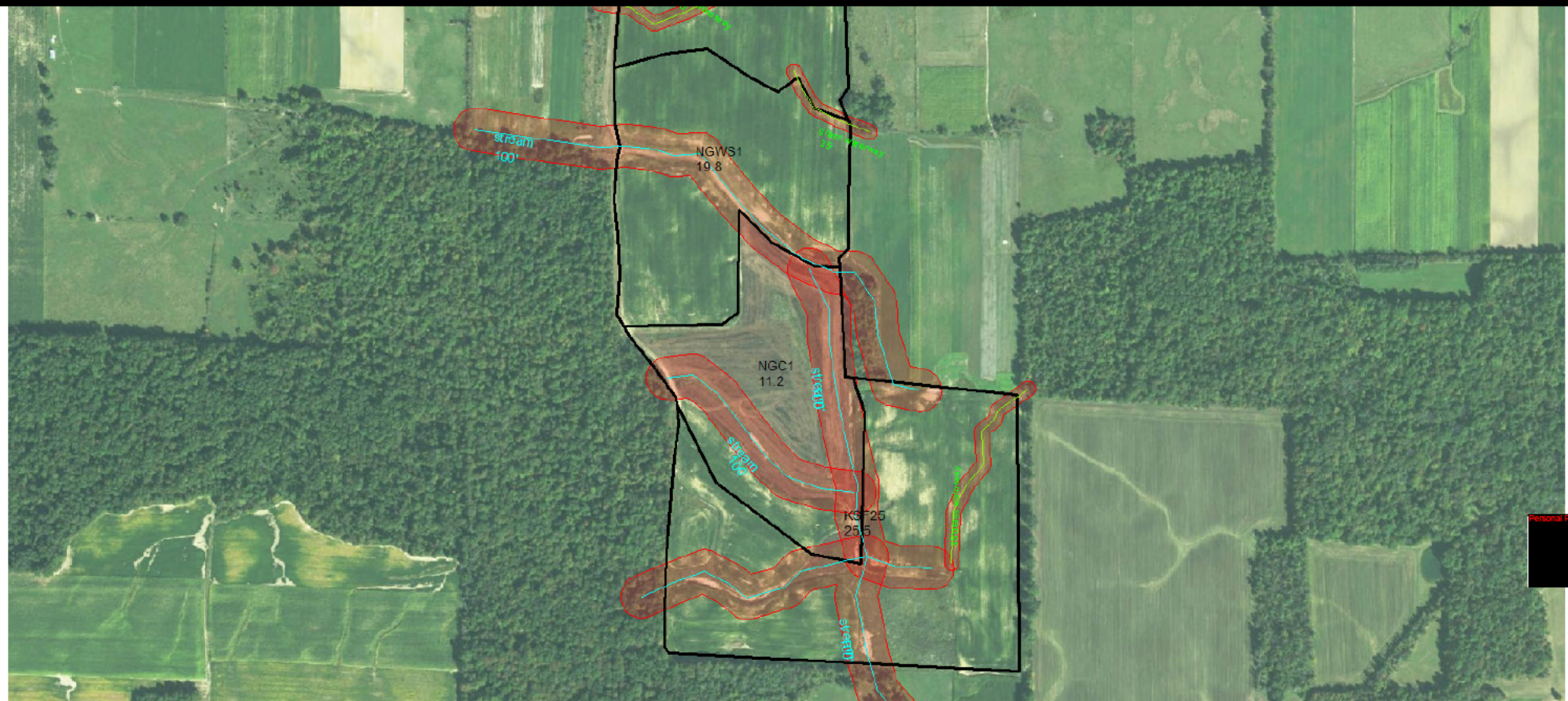


0 225 450 675 900
Scale in Feet



35 ft vegetated strip	
pond	
ditch or waterway	
well	
fields	
setbacks	
photo	

Personal Privacy/Ex. 6



0 225 450 675 900
Scale in Feet



35 ft vegetated strip	~
pond	□
ditch or waterway	~
well	●
fields	□
setbacks	□
photo	📷



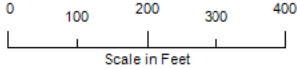
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Scale in Feet



35 ft vegetated strip	
pond	
ditch or waterway	
well	
fields	
setbacks	
photo	

Personal Privacy/Ex. 6

Personal Privacy/Ex. 6



35 ft vegetated strip	
pond	
ditch or waterway	
well	
fields	
setbacks	
photo	

Personal Privacy/Ex. 6

Personal Privacy/Ex. 6

Personal Privacy/Ex. 6

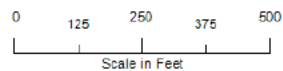
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Personal Privacy/Ex. 6

G58E1
31.3



35 ft vegetated strip	
pond	
ditch or waterway	
well	
fields	
setbacks	
photo	

ATTACHMENT G

Manure Analysis

Spectrum Analytic

1087 Jamison Road NW
Washington Court House, OH 43160 8748

www.spectrumanalytic.com

MIAMI VALLEY DAIRY
9235 WILDMAN RD
SOUTH CHARLESTON, OH 45368

Prepared For

Sample Information

Lab Number	FF43707	Sampled	06-13-2017
Sample	Personal Privacy/Ex. 6	Tested	06-13-2017
Manure Type	Dairy, Liquid		
	Pond #1		

Certificate of Analysis Manure

Analysis	Result	Unit	Nutrients lbs/1000 gal	Available 1st Yr ³ lbs/1000 gal	Nutrients lbs/acre-inch	Available 1st Yr ³ lbs/acre-inch
Moisture	98.06	%				
Nitrogen, Total	.11	%	9.6	5.3 ⁴	250	140 ⁴
Nitrogen, Ammonium	.04	%	3.5	3.5 ⁴	90	90 ⁴
Nitrogen, Organic	.07	%	6.1	1.8 ⁴	160	50 ⁴
Phosphorus [P2O5], Total	.05	%	4.4	4.4 ⁴	110	110 ⁴
Potassium [K2O]	.15	%	13.0	13.0 ⁴	340	340 ⁴
pH	7.5					

(1) Estimates of 1st year nutrient availability are unavailable if manure type is not specified.

(2) Estimates of 1st year nutrient availability of "Total Nitrogen" are unavailable if no "Ammonium Nitrogen" test is run.

(3) Estimates of 1st year nutrient availability do not take into consideration losses in handling and storage prior to incorporation. Nutrient Management Plan guidelines use 100% availability the 1st year for phosphorus and potassium. Actual 1st year availability varies from 40-90% depending on manure type, soil temperature, moisture and other factors. When using manure credits in fertility programs other than NMP, consult state publications, MWP-18, "Livestock Waste Facilities Handbook" or Spectrum Analytic for more specific 1st year availability percentages.

(4) Source: MWP 18, "Livestock Waste Facilities Handbook"

(5) Source: A3411, "Manure Nutrient Credit Worksheet", University of Wisconsin

Spectrum Analytic

1087 Jamison Road NW
Washington Court House, OH 43160-8748

www.spectrumanalytic.com

MIAMI VALLEY DAIRY
9235 WILDMAN RD
SOUTH CHARLESTON, OH 45368

Prepared For

Sample Information

Lab Number	FF44794	Sampled	11-03-2017
Sample	#7	Tested	11-03-2017
Manure Type	Dairy, Liquid		
	Pond #1		

Certificate of Analysis Manure

Analysis	Result	Unit	Nutrients lbs/1000 gal	Available 1st Yr ³ lbs/1000 gal	Nutrients lbs/acre-inch	Available 1st Yr ³ lbs/acre-inch
Moisture	97.1	%				
Nitrogen, Total	.09	%	7.8	4.2 ⁴	200	110 ⁴
Nitrogen, Ammonium	.03	%	2.6	2.6 ⁴	70	70 ⁴
Nitrogen, Organic	.06	%	5.2	1.6 ⁴	140	40 ⁴
Phosphorus [P2O5], Total	.07	%	6.1	6.1 ⁴	160	160 ⁴
Potassium [K2O]	.15	%	13.0	13.0 ⁴	340	340 ⁴

(1) Estimates of 1st year nutrient availability are unavailable if manure type is not specified.

(2) Estimates of 1st year nutrient availability of "Total Nitrogen" are unavailable if no "Ammonium Nitrogen" test is run.

(3) Estimates of 1st year nutrient availability do not take into consideration losses in handling and storage prior to incorporation. Nutrient Management Plan guidelines use 100% availability the 1st year for phosphorus and potassium. Actual 1st year availability varies from 40-90% depending on manure type, soil temperature, moisture and other factors. When using manure credits in fertility programs other than NMP, consult state publications, MWP-18, "Livestock Waste Facilities Handbook" or Spectrum Analytic for more specific 1st year availability percentages.

(4) Source: MWP-18, "Livestock Waste Facilities Handbook"

(5) Source: A3411, "Manure Nutrient Credit Worksheet", University of Wisconsin

ATTACHMENT H
Ohio EPA CAFO NPDES Water Quality Monitoring

Ohio EPA CAFO NPDES Water Quality Monitoring

This form may be applicable for CAFOs covered under an individual permit that includes water quality monitoring of storm water from the production area. A grab sample shall be collected from the location specified in the permit during the months of May and November during the first 30 minutes of a rainfall event that causes a discharge from the sampling outfall. If collection of the grab sample during the first 30 minutes is inappropriate due to dangerous weather conditions, collect the sample as soon as possible after suitable conditions occur, and document the reason for delay.

Date of Sample: May / November _____

Time of Sample Collection: _____

Location of Sample: _____

Initials/Name of Sample Collector: _____

Was Sample Collected Within First 30 Minutes of Rainfall? Yes No

If No, Reason for Delay: _____

Was Sample Analyzed for BOD5, Total Suspended Solids, Ammonia, TKN, and Total Phosphorus?

Yes No

Are Laboratory Results Attached? Yes No

(Note the results should indicate the date the analyses were performed, the time the analyses were initiated, the initials or name of the individuals who performed the analyses, and the references for the analytical techniques or methods used. The laboratory should analyze the samples according to the test procedures approved under 40 CFR Part 136.)

Comments: _____

The precipitation at the facility should be recorded for two days prior to the sample collection and the day of the collection.

Total Precipitation Two Days Before Sample Collection: _____ inches

Total Precipitation One Day Before Sample Collection: _____ inches

Total Precipitation Day of Sample Collection: _____ inches

ATTACHMENT I
Ohio EPA CAFO NPDES Permit Storm Water Pond
Outfall Monitoring

Ohio EPA CAFO NPDES Permit Storm Water Pond Outfall Monitoring

Notice – This form should only be included in the manure management plan for facilities with storm water ponds that contain a discharge to surface waters that receive runoff from the production area. These ponds should only be receiving storm water associated with industrial activity and not manure, silage leachate, process wastewater, or any other wastewater. Storm water ponds receiving plate cooling water or other non-contact cooling water should be permitted and monitored under specific requirements in the NPDES permit that pertain to the non-contact cooling water discharge.

Ohio EPA CAFO NPDES Permit Storm Water Pond Outfall Monitoring

Where applicable, a storm water pond located at the CAFO production area that has a discharging outlet to waters of the State shall be monitored through biannual water quality sample collection. A grab sample shall be collected from the outlet pipe during the months of March and November during the first 30 minutes of a rainfall event that causes the pond to discharge. If collection of the grab sample during the first 30 minutes is inappropriate due to dangerous weather conditions, collect the sample as soon as possible after suitable conditions occur, and document the reason for delay.

Date of Sample: March / November _____

Time of Sample Collection: _____

Location of Sample: _____

Initials/Name of Sample Collector: _____

Was Sample Collected Within First 30 Minutes of Rainfall? Yes No

If No, Reason for Delay: _____

Was Sample Analyzed for BOD5, Ammonia, TKN, and Total Phosphorus? Yes No

Are Laboratory Results Attached? Yes No

(Note the results should indicate the date the analyses were performed, the time the analyses were initiated, the initials or name of the individuals who performed the analyses, and the references for the analytical techniques or methods used. The laboratory should analyze the samples according to the test procedures approved under 40 CFR Part 136.)

Comments: _____

ATTACHMENT J
Ohio EPA CAFO NPDES Permit Production Area
Discharge Monitoring

Ohio EPA CAFO NPDES Permit Production Area Discharge Monitoring

In the event that a spill, discharge, or overflow of manure occurs at any time from the production area to waters of the State, a water quality sample of the discharge shall be collected, Ohio EPA must be notified, and a follow up incident report must be submitted to Ohio EPA.

Water Quality Sampling

Within the first **30 minutes** of the first knowledge of a discharge to waters of the State, a grab sample must be collected where the spill is entering the surface water (e.g., tile outlet discharge, concentrated flow surface flow into surface water, etc.). If sampling of the discharge within the first 30 minutes is inappropriate due to dangerous weather conditions, collect the sample as soon as suitable conditions occur and document the reason for delay.

Date of Sample: _____

Time of Sample Collection: _____

Initials/Name of Sample Collector: _____

Was Sample Collected Within First 30 Minutes of Discovery? Yes No

If No, Reason for Delay: _____

Was Sample Analyzed for BOD5, Ammonia, and Total Phosphorus? Yes No

Are Laboratory Results Attached? Yes No

(Note the results should indicate the date the analyses were performed, the time the analyses were initiated, the initials or name of the individuals who performed the analyses, and the references for the analytical techniques or methods used. The laboratory should analyze the samples according to the test procedures approved under 40 CFR Part 136.)

Ohio EPA Notification

Ohio EPA should be notified as soon as possible but no later than the first **24 hours** of first knowledge of a discharge to waters of the State by calling the Spill Hotline at **1-800-282-9378**.

Was Ohio EPA Spill Hotline Contacted? Yes No

Incident Report

Within **14 days** of the discharge occurrence, a report must be submitted to Ohio EPA, Central Office, Division of Surface Water, P.O. Box 1049, Columbus, Ohio 43216-1049 that contains, at a minimum, the following information:

- ☐ Copy of Water Quality Sample Results
- ☐ Description of Reason For Discharge
- ☐ Location of Incident
- ☐ Estimate of Quantity and Duration of Discharge
- ☐ Quantity and Duration of Precipitation Prior to Incident
- ☐ Measures Taken to Remediate the Discharge
- ☐ Measures Taken to Prevent Reoccurrence

If the water quality sample results are not available at the time the report is submitted, they shall be submitted within 5 days of receipt from the laboratory.

Was a Complete Report Submitted to Ohio EPA? Yes No

Copy of Report Attached? Yes No

Date of Report Submittal: _____

ATTACHMENT K

**Ohio EPA CAFO NPDES Permit Manure Application
on Frozen/Snow Covered Ground Records**

Ohio EPA CAFO NPDES Permit Manure Application on Frozen/Snow Covered Ground Records

The following records shall be maintained in addition to regular records for all instances of surface application of manure on frozen/snow covered ground. Other locations for manure disposal should be investigated prior to the land application. Stockpiling of solid manure shall be utilized rather than spreading on the field. Only limited quantities of manure shall be applied to address manure storage limitations until non-frozen or non-snow covered soils are available for manure application.

Date of Application			
Location of Application			
Amount of Manure Applied (Gallons/Tons)			
Number of Acres			
Weather Conditions – 24 Hours Prior	Temperature	Precipitation	Chance of Precipitation (%)
Weather Conditions – Day Of Application	Temperature	Precipitation	Chance of Precipitation (%)
Weather Conditions – 24 hours After	Temperature	Precipitation	Chance of Precipitation (%)
Soil Conditions	Depth of Snow Cover		
	Frozen? Estimated Depth of Frozen Layer		
	Surface Residue Cover (Type and Percentage)		
	Field Slope		
	Available Water Capacity		
Setbacks Maintained? (200 feet from surface waters & conduits to surface waters)			
Reason for Applying Manure			

Concentrated field surface drainage and tile outlets shall be visually monitored at the conclusion of the manure application, and periodically afterwards when weather is likely to produce manure runoff including when temperatures rise, snow melts, and in conjunction with rainfall, etc., until the manure has been assimilated into the field and is no longer likely to discharge into waters of the State.

Date of Field Inspection	Weather Conditions	Signs of Discharge

ATTACHMENT L
Ohio EPA CAFO NPDES Permit Manure Land
Application Restrictions

Ohio EPA CAFO NPDES Permit Manure Land Application Restrictions

Streams, Lakes, Ponds, Watercourses, Other Surface Waters, Waterways, Open Tile Line Intake Structures, or Other Conduits to Surface Waters
Manure shall not be applied closer than 100 feet , unless a 35-foot vegetated buffer has been established where manure application is prohibited. A mandatory 35-foot vegetated buffer must be established along fields with perennial streams regardless of setback requirement.
Public Drinking Water Surface Water Intakes
Land application shall not take place within the emergency management zone of a public water system using surface water. Otherwise, manure shall not be applied closer than 300 feet from the edge of the field.
Seasonal Salmonid and Cold Water Habitats
Manure shall not be applied closer than 100 feet , unless a 35-foot vegetated buffer has been established where manure application is prohibited.
Public Drinking Water Wells
Land application shall not take place within a highly susceptible drinking water source protection area (as defined by Ohio EPA) for a community public water system using ground water and not within the inner management zone for all other community public water systems using ground water.
Private Drinking Water Wells
For injection application and surface application followed by incorporation within 24 hours , manure shall not be applied closer than 100 feet .
For surface application not followed by incorporation within 24 hours, manure shall not be applied closer than 300 feet .
Class V Agricultural Drainage Wells, Agricultural Wells, or Sinkholes
For injection application and surface application followed by incorporation within 24 hours , manure shall not be applied closer than 100 feet .
For surface application not followed by incorporation within 24 hours, manure shall not be applied closer than 300 feet .
Springs
Manure shall not be applied closer than 300 feet .
Slope
For fields with a slope less than 15% , surface application can be used when yearly average soil loss is less than five tons per acre or "T", whichever is less.
Manure shall not be applied to cropland over 15% slope or to pasture/hayland over 20% slope unless one of the following precautions are taken:
a. Immediate incorporation or injection with operations done on the contour, unless the field has 80% ground cover (residue or canopy);
b. Applications are timed during periods of lower runoff and/or rainfall (May 20 to October 15);
c. Split applications are made (separated by rainfall events) with single applications not exceeding 5,000 gallons per acre for liquid manure or 10 wet tons per acre for solid manure;
d. The field is established and managed in contour strips with alternated strips in grass or legume.
Stockpiling of Manure
Streams, Lakes, Ponds, Watercourses, Waterways, Open Tile Line Intake Structures, or Other Conduits to Surface Waters, minimum 300 feet setback. (Stockpiling within waterways or concentrated flow areas is prohibited.)
Public and Private Wells/Springs, minimum 300 feet setback.
Flooding/flood plains/floodways, prohibited .
Public Drinking Water Surface Intakes, minimum 1,500 feet setback.
Class V Agricultural Drainage Wells and Sinkholes, minimum 300 feet setback.
Slope, 0-6% only .

Ohio EPA CAFO NPDES Permit Manure Land Application Restrictions

Prior to land applying manure, **the land application area shall be inspected** to determine the suitability of the site for land application (considerations shall include tile location and depth, soil type, evidence of soil cracking, available water capacity of the soil, crop maturity, prior precipitation, forecasted precipitation, etc.) and field conditions shall be documented at the time of the inspection. Broken tiles or blow out holes shall be repaired prior to land application.

For fields with **soil cracks** greater than six inches deep, the soil must be tilled before the land application of liquid manure or the application must be delayed until the cracks are sealed. However, liquid manure applications may be made on tiled fields with growing crops if the application rate is less than or equal to a quarter of an inch or 6,700 gallons per acre and tile plugs are used or tile stops closed prior to application.

For fields that are **prone to flooding**, floodplains, or floodways, manure must be injected or incorporated within 24 hours of application. No manure application shall occur during the periods of expected flooding.

Land application of manure shall **not cause ponding or runoff**. For liquid manure applications, the application shall not exceed the available water capacity in the upper eight inches of the soil in the application field.

Land application shall **not occur on saturated soils** or during rain or runoff events, and shall not occur if the **forecast** contains a greater than **50% chance of precipitation** for any individual hour, for a period extending 24 hours after the commencement of land application.

If solid manure is applied on **conventionally tilled bare soil**, the manure shall be incorporated into the soil within two days after application on the land. This requirement does not apply to no-till fields, or fields where crops are actively growing.

Manure application shall not take place on fields where **soil loss** exceeds "T".

For land application sites with **subsurface tile drainage**, all field outlets shall be visually monitored before, during and after application of manure to the site and the results of that monitoring shall be recorded. Methods/devices to stop or capture subsurface drain flow shall be accessible. If manure reaches the subsurface drain outlet to waters of the State, the application of manure shall cease and the flow stopped or captured.

For land application of liquid manure to sites with **subsurface tile drainage**, the following criteria must be followed:

- Application rates shall be less than or equal to half an inch or 13,000 gallons per acre per application event.
- A tool shall be used that can disrupt and/or close the preferential flow paths in the soil using horizontal fracturing, or the surface of the soil shall be tilled three to five inches deep to a seedbed condition to soak up the liquid manure and keep it out of preferential flow channels.
- If injection is used, manure shall only be injected deep enough to cover manure with soil. The soil shall be tilled at least three inches below the depth of injection prior to application.
- For fields with growing crops or continuous no till fields where tillage is not an option, all tile outlets from the application area are to be plugged/tile stops closed prior to application.

Manure shall be managed in such a manner to prevent land application on **frozen or snow covered ground**. Failure to take appropriate action to avoid land application on frozen and/or snow covered ground is a violation of the Ohio NPDES permit and subject to enforcement.

If practical, manure should be injected and/or incorporated within 24 hours to minimize surface manure runoff. Where manure is not injected or incorporated within 24 hours, the following frozen and/or snow covered ground restrictions are mandatory. Other locations for manure disposal should be investigated prior to the land application. Stockpiling of solid manure shall be utilized rather than spreading on the field. Only limited quantities of manure shall be applied to address manure storage limitations until non-frozen or non-snow covered soils are available for manure application. Records must be maintained for all instances of application on frozen or snow covered ground that include: date, amount applied, location, acres applied to, weather and soil conditions including depth of snow cover, surface residue cover, and reason for applying manure at that time.

In addition to all other land application restrictions in the NPDES permit (restrictions on fields prone to flooding, not causing ponding or runoff, restrictions on saturated soils, and requirement for tiled fields), the following criteria must also be met for surface manure application on frozen or snow covered ground per application event per field per winter season:

- The field must have greater than or equal to ninety percent surface residue cover at the time of application, and vegetation/residue shall not be completely covered by ice and/or snow at the time of application.
- The maximum manure application rate is 5,000 gallons per acre for liquid manure, 10 wet tones per acre for solid manure with more than 50% moisture, and 5 wet tons per acre for solid manure with less than 50% moisture. Depending on soil hydrologic group and surface residue cover, the liquid manure application rate on frozen soils may need to be lowered to prevent ponding or runoff.
- Manure shall not be applied on more than twenty contiguous acres. Contiguous areas for application are to be separated by a break of at least 200 feet. Areas used for application are to be the furthest from surface waters and present the least potential for runoff.
- Setbacks from surface waters and conduits to surface waters (including grassed waterways and surface drains) must be a minimum of 200 feet. This setback shall also have at least 90% surface residue cover, and vegetation/residue shall not be completely covered by ice and/or snow at the time of application. This distance may need to be further increased due to local conditions and other setback restrictions.
- For fields with slopes greater than 6%, manure shall be applied in alternating strips 60 to 200 feet wide generally on the contour, or in the case that the field is managed in contour strips with alternative strips in grass or legume, manure shall only be applied on alternative strips. Note that the application rate shall be determined for each separate application strip area, not area of entire field.
- Manure phosphate applications exceeding 250 pounds per acre are prohibited.

Concentrated field surface drainage and tile outlets shall be visually monitored at the conclusion of the manure application, and periodically afterwards when weather is likely to produce manure runoff including when temperatures rise, snow melts, and in conjunction with rainfall, etc., until the manure has been assimilated into the field and is no longer likely to discharge into waters of the State.

ATTACHMENT M
Ohio EPA CAFO NPDES Permit Land Application
Area Discharge Monitoring

Ohio EPA CAFO NPDES Permit Land Application Area Discharge Monitoring

Non Frozen/Snow Covered Ground

In the event that a spill or discharge manure occurs at any time from a land application area to waters of the State that is not agricultural storm water, Ohio EPA must be notified and a follow up report must be submitted to Ohio EPA.

Ohio EPA Notification

Ohio EPA should be notified as soon as possible but no later than the first **24 hours** of first knowledge of a discharge to waters of the State by calling the Spill Hotline at **1-800-282-9378**.

Was Ohio EPA Spill Hotline Contacted? Yes No

Incident Report

Within **14 days** of the discharge occurrence, a report must be submitted to Ohio EPA, Central Office, Division of Surface Water, P.O. Box 1049, Columbus, Ohio 43216-1049 that contains, at a minimum, the following information:

- ☐ Description of Reason For Discharge
- ☐ Location of Incident
- ☐ Estimate of Quantity and Duration of Discharge
- ☐ Quantity and Duration of Precipitation Prior to Incident
- ☐ Land Application Records
- ☐ Measures Taken to Remediate the Discharge
- ☐ Measures Taken to Prevent Reoccurrence

Was a Complete Report Submitted to Ohio EPA? Yes No

Copy of Report Attached? Yes No

Date of Report Submittal: _____

ATTACHMENT N
Frozen/Snow Covered Ground

Frozen/Snow Covered Ground

In the event that a spill or discharge manure occurs at any time from a land application area to waters of the State from application to frozen and/or snow covered ground, a water quality sample of the discharge shall be collected*, Ohio EPA must be notified, and a follow up report must be submitted to Ohio EPA.

Water Quality Sampling

*For existing CAFOs (on and after April 1, 2007) and new CAFOs, within the first **30 minutes** of the first knowledge of a discharge to waters of the State, a grab sample must be collected where the spill is entering the surface water (e.g., tile outlet discharge, concentrated flow surface flow into surface water, etc.). If sampling of the discharge within the first 30 minutes is inappropriate due to dangerous weather conditions, collect the sample as soon as suitable conditions occur and document the reason for delay.

Date of Sample: _____

Time of Sample Collection: _____

Initials/Name of Sample Collector: _____

Was Sample Collected Within First 30 Minutes of Discovery? Yes No

If No, Reason for Delay: _____

Was Sample Analyzed for Ammonia? Yes No

Are Laboratory Results Attached? Yes No

(Note the results should indicate the date the analyses were performed, the time the analyses were initiated, the initials or name of the individuals who performed the analyses, and the references for the analytical techniques or methods used. The laboratory should analyze the samples according to the test procedures approved under 40 CFR Part 136.)

Ohio EPA Notification

Ohio EPA should be notified as soon as possible but no later than the first **2 hours** of first knowledge of a discharge to waters of the State by calling the Spill Hotline at **1-800-282-9378**.

Was Ohio EPA Spill Hotline Contacted? Yes No

Incident Report

Within **14 days** of the discharge occurrence, a report must be submitted to Ohio EPA, Central Office, Division of Surface Water, P.O. Box 1049, Columbus, Ohio 43216-1049 that contains, at a minimum, the following information:

- ☐ Copy of Water Quality Sample Results
- ☐ Description of Reason For Discharge
- ☐ Location of Incident
- ☐ Estimate of Quantity and Duration of Discharge
- ☐ Quantity and Duration of Precipitation Prior to Incident
- ☐ Measures Taken to Remediate the Discharge
- ☐ Measures Taken to Prevent Reoccurrence
- ☐ Land Application Records

If the water quality sample results are not available at the time the report is submitted, they shall be submitted within 5 days of receipt from the laboratory.

Was a Complete Report Submitted to Ohio EPA? Yes No

Copy of Report Attached? Yes No

Date of Report Submittal: _____

ATTACHMENT O
Ohio EPA CAFO NPDES Permit Incident Report

Ohio EPA CAFO NPDES Permit Incident Report

Within 14 days of a discharge occurrence from either the production or land applications areas, a report must be submitted to Ohio EPA, Central Office, Division of Surface Water, P.O. Box 1049, Columbus, Ohio 43216-1049 that contains, at a minimum, the following information.

Date	
Name of Facility	
NPDES Permit Number	
Date of Incident	
Description of Reason for Discharge	
Location of Incident (Include Latitude and Longitude)	
Estimate of Quantity and Duration of Discharge	
Quantity and Duration of Precipitation Prior to Incident	Day Before: Day Of:
Measures Taken to Remediate the Discharge	
Measures Taken to Prevent the Reoccurrence	
Copy of Water Quality Sample Results Attached (If Applicable)	Yes No
Copy of Land Application Records Attached (If Applicable)	Yes No
Signature	

Attach additional pages if necessary.

If the water quality sample results are not available at the time the report is submitted, they shall be submitted within 5 days of receipt from the laboratory.

ATTACHMENT P
Ohio EPA CAFO NPDES Permit Manure Storage
Evaluation

Ohio EPA CAFO NPDES Permit Manure Storage Evaluation

Adequate manure storage volume shall be provided and maintained to prevent the necessity of land applying manure on frozen and/or snow covered ground. No later than September 15th of each year, an evaluation must be conducted of all manure storage or treatment structures to determine what steps are needed to avoid the need to land apply manure on frozen or snow covered fields for the upcoming winter.

Date of Evaluation:

Storage Structure	Current Volume of Manure in Structure (tons/gallons)	Current Storage Volume Remaining (tons/gallons)	Storage Volume Required for Winter (tons/gallons)	Amount of Manure to Be Removed (tons/gallons)	Description of Manure Disposal/Utilization For Manure to be Removed (tons/gallons)

Comments:

Was this manure removal plan accomplished?

If so, when?

If not, please explain:

ATTACHMENT Q

Operating Records



OPERATING RECORD 901:10-2-16

Purpose: The Operating Record is a part of the Permit to Operate. The documents record the day-to-day activities and inspections at the facility. The Operating Record will be inspected by the Ohio Department of Agriculture (ODA) to determine if the facility is in compliance with laws, rules, and permits. The Operating Record must be made available to the ODA upon request.

In accordance with Rule 901:10-2-16 of the Ohio Administrative Code (OAC) the owner or operator shall maintain the operating record on forms provided by ODA or on forms selected by the owner or operator, provided that the Director of Agriculture, or his representative, approves them.

Please think about the best way to organize and manage the records that you need for your operation. If a Form or a section of a Form does not apply to your facility, the use of "NA" (not applicable) is allowed or you may simply cross out the portions that do not apply or remove that form from your operating record.

A special note on records: You may choose to record your inspections on any one of several forms in this package that are approved by ODA, depending on the animal species on your operation and/or the physical structure of your operation, e.g., liquid manure or solid manure. You may also choose to develop a similar form that would be more efficient for your facility, provided that your ODA inspector is in agreement.

The owner or operator is required to keep documents created as part of the Operating Record for a minimum of five years. The Operating Record may be made available to the public.

The following sections are required for the Operating Record:

1. Annual Record of Discharges:
 - *Form 1 - Annual Discharge Information*
2. Equipment Records:
 - *Form 2 - Land Application Equipment Record*
3. Inspection of Manure Storage and Treatment Facilities: (choose one or both)
 - *Form 3A - Manure Storage Ponds and Treatment Facilities with Liquid Storage*
 - *Form 3B - Fabricated Structures for Dry Manure Storage*
4. Manure Characterization Records:
 - *Attach or include copies of analytical sampling results for your manure. Contact your laboratory to obtain a copy. Sampling must be done annually, with a copy of the annual sample results kept in your Operating Record.*
5. Distribution and Utilization:
 - *Form 6 - Distribution and Utilization*
 - *Form 6A - Distribution and Utilization Acknowledgement Form*
 - *APPENDICIES*
6. Land Application Records:
 - *Form 7A - Cropping Schedule: Target and Actual Yields*
 - *Form 7B1, 7B2 and 7B3 - Field Information: Dates, Rates, Methods, Amounts, Weather, and Best Management Practices*
7. Mortality Management Plan:
 - *Form 9 - Mortality Management Record*
8. Annual Report Form
9. Emergency Spill Report Form

FORM 1: ANNUAL RECORD OF DISCHARGES

ANNUAL DISCHARGE INFORMATION
(OAC 901:10-2-16(A)(1)(a)(xii) and 901:10-2-20)

Complete this record as part of the Annual Report (Form 11) if any overflow or discharge from the production area has occurred in the previous twelve months. This requirement is in addition to the requirements to report the discharge to ODA within twenty-four hours and to complete the Emergency Spill Report (Form 12) immediately after the discharge takes place

Date and time of discharge from the production area	Volume and characteristics of the discharge from the production area

LAND APPLICATION EQUIPMENT RECORD

Please list all equipment to be used as part of managing manure at the manure storage or treatment facility. At a minimum, this list includes land application equipment used as indicated in the chart below. Record the dates of inspections, maintenance, calibration monitoring and repairs. All repairs shall be completed promptly. Rule 901:10-2-08(A)(2) and (A)(3) of the OAC.

Equipment Type	Date Calibrated	Calibration Method	List Maintenance Performed (i.e. oil changes, beaters cleaned, end gates checked, hose leak etc.)	Date of Maintenance
Solid Spreader				
Liquid Spreader – Injected				
Liquid Spreader – Surface Spray				
Liquid Spreader – Knives up				
Hose pull – Knives up				
Hose pull – Injected				
Traveling gun				
Standing pipe				
Center pivot				
Other-				

MANURE STORAGE OR TREATMENT FACILITY

Manure Storage or Treatment Facility includes the following:

- Manure Storage Pond – earth impoundments or pits used to settle and store manure.
- Manure Treatment Lagoon – earth impoundments or pits that biologically treat manure.
- Fabricated Structures – engineered, man-made tanks of concrete, steel, fiberglass, plastic, timber, or other approved/designated materials (this also includes composting pads).

The following must be included in the Operating Record for the manure storage or treatment facilities:

1. Record the information at the top of the page for each manure storage pond, manure treatment lagoon, or fabricated structure. Include one page per each pond, lagoon, and structure. "Volume of Storage" should not include the freeboard volume. Your permit tells you the amount of freeboard required.
2. Record the inspection dates when you inspect each manure storage pond or manure treatment lagoon, depth of manure, remaining storage capacity, and date and amount of manure removed, and the time of year when you remove manure. For fabricated structures that do not have liquid manure (e.g., hi-rise poultry, pen pack), record inspection dates, approximate depth of manure, remaining storage capacity by percentage, approximate amount of manure removed, and the time of year when you remove manure.
3. Record the inspection dates as you inspect for cracks, animal damage, and seepages in and around a pond or lagoon. Record any structural damage to ponds, lagoons, or structures.
4. Record inspections of vegetation.
5. Record the inspections of storm water conveyances and any protective vegetative cover.
6. Under "Notes" be sure to record any corrective actions taken to repair or replace any damage, holes, cracks, etc. Routine mowing does not need to be recorded, but an ODA inspector will look for conditions that promote rodents, flies, or erosion. The inspection records must include, but are not limited to, the date, time, and results of the inspection, as well as any comments.

MANURE STORAGE PONDS, MANURE TREATMENT LAGOONS, FABRICATED STRUCTURES WITH LIQUID MANURE (WEEKLY)

Manure Storage/Structure Identification:								
Days of Storage:								
Total Depth of Storage:								
Less Freeboard:								
Volume of Storage:	<input type="checkbox"/> Cubic Feet	<input type="checkbox"/> Tons	<input type="checkbox"/> Gallons					
Less Freeboard:								
DATE:								
STORAGE								
Depth of Manure								
Remaining Storage								
How Much Manure Removed								
STRUCTURAL INTEGRITY								
Any Seepage								
Structural Damage								
Condition of Vegetation								
Visual/odor inspection of perimeter drain effluent (if applicable)								
STORM WATER CONVEYANCE								
Functioning Properly								
Condition of Vegetation								
SUBSURFACE DRAINAGE SYSTEMS								
Groundwater Level Being Maintained as Designed?								
Pumps Operating Adequately?								
Outlet Maintained?								
PLEASE NOTE ANY CORRECTIVE ACTION TAKEN BELOW (include date when corrective action taken):								

FABRICATED STRUCTURES FOR DRY MANURE STORAGE

Manure Storage/Structure Identification:						
Days of Storage:						
Total Depth of Storage:						
Less Freeboard:						
Volume of Storage: <input type="checkbox"/> Cubic Feet <input type="checkbox"/> Tons						
Less Freeboard:						
Month	Day	Manure Operating Levels <i>(Approximate percent capacity remaining)</i>	Structural Integrity	Manure Removal Dates <i>(See Manure Log)</i>	Vegetative Cover	Perimeter Drain (odor/color)
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						

FORM 5: MANURE CHARACTERIZATION RECORDS

MANURE CHARACTERIZATION RECORDS

For each manure storage or treatment facility (i.e., each manure storage pond, manure treatment lagoon, and fabricated structure), please record a copy of the results of sampling and analysis of the manure as required by Rule 901:10-2-10 of the OAC.

Attach the manure tests to this section of the Operating Record. **Be sure to identify each specific barn or pond or lagoon or other structure per each sample taken. Identify the laboratory method used to analyze the manure, which must refer to "Recommended Methods of Manure Analysis" (A3769), University of Wisconsin 2003.**

FORM 5: MANURE CHARACTERIZATION RECORD

%Moisture:	Total N	Ammonia N	Organic N	P ₂ O ₅	K ₂ O
Lbs/Ton or Lbs/1000 Gal.					
Total Annual Lbs. of Nutrient					
Manure Storage ID:					
Annual Volume from Manure Management Plan, Part 3, Column B:					

%Moisture:	Total N	Ammonia N	Organic N	P ₂ O ₅	K ₂ O
Lbs/Ton or Lbs/1000 Gal.					
Total Annual Lbs. of Nutrient					
Manure Storage ID:					
Annual Volume from Manure Management Plan, Part 3, Column B:					

%Moisture:	Total N	Ammonia N	Organic N	P ₂ O ₅	K ₂ O
Lbs/Ton or Lbs/1000 Gal.					
Total Annual Lbs. of Nutrient					
Manure Storage ID:					
Annual Volume from Manure Management Plan, Part 3, Column B:					

FORM 6: DISTRIBUTION AND UTILIZATION

DISTRIBUTION AND UTILIZATION METHODS

Maintain complete records of off-site distribution of manure for use by other than the permittee. All manure from permitted facilities shall be distributed either to a Certified Livestock Manager or a certified fertilizer applicator. Quantify manure transferred off-site for each twelve-month period (tons/gallons). The following information must be recorded using this Form or another form pre-approved by the ODA.

1. Quantity of nutrients managed via distribution and utilization
2. Type of Distribution and Utilization
3. The date of the off-site transfer of manure
4. The name of the recipient of manure
5. Either the Certified Livestock Manager Certificate number or the Certified Fertilizer Applicator number.
6. Provide copies of the following Appendices to each recipient:
 - Appendix A – How to Use Appendices
 - Appendix A, Table 1 – Soils Prone to Flooding
 - Appendix A, Table 2 – Land Application Setbacks
 - Appendix B – Available Water Capacity Chart (for liquid manure)
 - Appendix F – The Most Limiting Nutrient Chart (all Appendices included on next pages).
7. Maintain copies of acknowledgements between the owner and operator of the facility and livestock manure brokers made pursuant to auctions or farm sales. Refer to Form 6A for an example acknowledgement form that could be used.

DISTRIBUTION AND UTILIZATION RECORDS

Quantity <i>(Tons, Gallons, Cubic Yards)</i>	Date	Name and Address	CLM # or Fertilizer Certification #	Manure Analysis Given? Y/N	Appendix A – Setbacks, Soils Prone to Flooding, and Most Limiting Nutrient Chart? Y/N	Available Water Capacity <i>(For Liquid Only)</i> Y/N

Please note on a separate form any other practices such as manure management meetings, manure bills of sale, or other practices above and beyond rule requirements.

ACKNOWLEDGEMENT FORM

Date: _____

[name and address of permitted facility] _____

The seller, [authorized person of above-named facility] _____, agrees to transfer ownership of manure produced at their facilities in the amount of _____ [circle: tons/gallons] to _____, hereafter referred to as the recipient/broker, who agrees to accept all responsibility for handling, land application, or any further use of the manure transferred and in the recipient/broker's possession, as specified by any and all state laws governing the land application and any other such use of animal manure.

The recipient/broker acknowledges and shall adhere to the following:

"I have been provided with a copy of analytical results that list the nutrient content of the manure and total quantities of manure and copies of the applicable requirements of rule 901:10-2-14 of the Administrative Code. The manure will be distributed and utilized according to the best management practices and according to any state laws regulation these uses, as may be verified by site visits conducted by the soil and water conservation district or by inspections conducted by the Ohio department of agriculture. I certify that I hold a current Certified Livestock Manager Certificate or a current Fertilizer Applicator Certification."

Signed Name of Recipient/Broker

Date

Name of Recipient/Broker (Printed)

Address of Recipient/Broker

Check, if applicable. Recipient/Broker is:

- Certified Livestock Manager: _____ (Yes/No)
- Certified Livestock Manager Certificate Number: _____
- Certified Fertilizer Applicator: _____ (Yes/No)
- Certified Fertilizer Applicator Certificate Number: _____

APPENDICIES

APPENDIX A – RULE 901:10-2-14: HOW TO USE THE APPENDICES TO THIS RULE

Refer to Appendix A, Tables 1 and 2 – Soils Prone to Flooding through Appendix F – Most Limiting Manure Application Rates of Rule 901:10-2-14 (OAC):

1. Determine if the site has **soils** that are prone to **flooding** and **when** the expected flooding seasons are (**Appendix A, Table 1**). Note that applications **can only be made to soils prone to flooding at times outside the predicted flooding season**. All applications to soils prone to flooding must be **incorporated within 24 hours** and must follow the **setbacks in Appendix A, Table 2**.
2. Determine if manure will be staged at the land application site. Any manure that is staged at the land application site shall meet the **setbacks described in Column 1 of Appendix A, Table 2**. For solid manure, manure that is staged for more than 15 days from initial delivery will be considered a stockpile, which shall also meet the setbacks described in Appendix A, Table 2. Stockpiles shall not discharge to surface waters of the State and may require additional management practices to prevent such a discharge.
3. For **liquid manure** applications, follow **Appendix B, Available Water Capacity Chart, and Appendix F, Most Limiting Manure Application Rates Chart (Table 1 – Tiled Fields, Table 2 – Non-Tiled Fields)**. For **solid manures**, follow **Appendix F, Most Limiting Manure Application Rates Chart**.
4. Determine the **nutrient removal** for the expected cropping sequence using **Appendix C, Tables 1 – 3**. Determine **residual nitrogen credits** for the expected cropping sequence using **Appendix C, Table 4**.
5. Determine the **nitrogen leaching potential** of the field based on **Appendix C, Table 5, Nitrogen Leaching Assessment Procedure**. Note that all **tiled fields** have a **high nitrogen leaching potential**. **High** nitrogen leaching potential fields must have application **rates less than or equal to 50 lb/ac as applied nitrogen (calculated by adding NH₄-N to 1/3 Organic N) from June-October 1st UNLESS the field has a cover crop planted**.
6. Use the **current manure analysis** and the **relevant sections of Appendix C, Tables 6-7** to determine the amount of manure **nutrients available** for crop production.
7. Use **Appendix E, Table 1 (P-Index) if the Bray P1 or equivalent value of the soil test is over 150 ppm**.
8. Use **Appendix F, Most Limiting Manure Application Rates Chart**, Nitrogen, P₂O₅, K₂O, Rate (tons or gallons per acre), or Available Water Capacity to determine the application rate. The selected application rate must be the **most restrictive** of the five "Limiting Application Rate Criteria" for each Field Situation & Time of Year.

Other Notes:

9. When using **Appendix F**, although **not recommended**, **Phosphate** manure application rates can be made between **250-500 lb/ac/yr** in cases where **liquid manure exceeds 60 lbs. P₂O₅ per 1000 gallons** or **solid manure that exceed 80 lbs. P₂O₅ per ton**. The following criteria also apply: manure must be **incorporated within 24 hours** and **no applications** can be made on either **frozen or snow covered** ground or fields with **soil tests over 100 ppm Bray P1**; soil tests **less than 40 ppm Bray P1** shall have no further P additions for **3 years**; soil tests **between 40-100 ppm Bray P1** shall have no further additions of P for **5 years**; **no other limiting criteria can be violated**.

APPENDICIES

10. When using **legumes** as a nitrogen removal source, the **maximum legume nitrogen removal must be less than or equal to 150 lbs./ac.**
11. When applying **liquid manure** to tiled fields, the **following criteria must be followed (except for growing crops):**
- a. Applications must be less than or equal to 0.5" or 13,576 gal/ac.
 - b. Use a tool (**AERWAY tool or similar tool**) that can disrupt/close (using horizontal fracturing) the preferential flow paths in the soil, OR **till the surface of the soil 3-5" deep to a seedbed condition** to soak up the liquid manure and keep it out of preferential flow channels.
 - c. If **injection** is used, it should only be deep enough to cover the manure with soil. **Till the soil at least 3" below the depth of injection prior to application.** Tillage prior to application will be considered incorporation of the manure.
 - d. The **outlets must be monitored** before, during, and after application AND **provisions planned to plug the tile or capture the tile flow if liquid manure reaches the tile outlets.** If **No-till or pastures** are used for applications, **tiles must be plugged.**
12. If manure is to be applied on **frozen or snow-covered ground**, the field must have **at least 90% surface residue cover (e.g., good quality hay or pasture field, all corn grain residue).** For applications to **frozen or snow-covered ground**, manure shall not be applied on more than 20 contiguous acres. Contiguous areas for application are to be separated by a break from streams, ditches, waterways, surface water, etc. (areas that present the least runoff potential and are furthest from surface water). The **setbacks in Column 3** must be followed. **Prior approval** must be obtained from the **ODA, Livestock Environmental Permitting Program BEFORE** frozen or snow/ice covered ground surface manure applications. If manure can be **incorporated within 24 hours on frozen ground**, approval from ODA, Livestock Environmental Permitting Program **is not** required.
13. For **surface manure applications**, follow the **setbacks in Column 2.** For **incorporation within 24 hours or injection**, follow the **setbacks in Column 4.**

APPENDICIES

APPENDIX A, TABLE 1 – SOILS PRONE TO FLOODING

SOILS	MONTHS	COMMENT
Abscota Variant	Feb-Jun	
Adrian	Nov-May	
Aetna	Dec-Jun	
Algansee	Nov-May	
Algiers	Nov-Jun	Frequently flooded
Algiers	Dec-Jun	Occasionally flooded
Alluvial land	Nov-Dec	Long duration
Alluvial land	Jan-Dec	Very long duration
Ashton	Dec-May	
Beaucoup	Mar-Jun	
Bonnie	Oct-Jun	
Brookston	Dec-May	
Carlisle	Nov-May	
Ceresco	Mar-May	
Chagrin	Nov-May	
Chavies	Nov-Mar	
Clifty	Nov-May	
Coblen	Nov-Jun	
Cohoctah	Nov-Apr	
Cuba	Jan-May	
Defiance	Jan-May	
Edwards	Sep-May	
Eel	Oct-Jun	
Eel Variant	Jan-May	
Elkinsville	Jan-Dec	
Euclid	Dec-Jun	
Fitchville	Dec-Jun	
Flatrock	Dec-Apr	
Flatrock, limestone substratum	Nov-Apr	
Fluvaquents	Nov-Jun	
Genesee	Oct-May	
Genesee Variant	Jan-May	
Gessie	Oct-May	
Glendora	Jan-Dec	
Grigsby	Dec-Apr	
Hackers	Jan-Apr	
Harrod	Nov-Jun	
Hartshorn	Nov-May	
Haymond	Dec-May	
Holly	Sep-May	Frequently flooded, very long duration
Holly	Nov-May	
Holton	Dec-Jun	
Huntington	Dec-May	
Joliet	Apr-Jun	
Jules	Mar-Jun	
Kerston	Mar-May	
Killbuck	Jan-Dec	

SOILS	MONTHS	COMMENT
Kinn	Dec-Apr	
Knoxdale	Dec-Apr	
Kyger	Nov-May	
Landes	Jan-Jun	
Landes Variant	Nov-Jun	
Lanier	Nov-Jun	
Latty	Jan-May	
Lenawee	Mar-May	
Lindside	Dec-Apr	
Linwood	Nov-Jun	
Lobdell	Jan-Apr	Frequently flooded
Lobdell	Nov-Apr	
Martinsville	Jan-Apr	
Martisco	Mar-Jun	
McGary Variant	Jan-Dec	
Medway	Nov-Jun	
Medway Variant	Nov-May	
Medway, limestone substratum	Nov-Dec	
Melvin	Sep-May	Frequently flooded, long duration
Melvin	Dec-May	
Mentor	Jan-Dec	
Millgrove	Nov-Jun	
Montgomery	Nov-May	
Moshannon	Dec-May	
Muskego	Nov-May	
Newark	Dec-Apr	
Newark Variant	Jan-Apr	
Nolin	Feb-May	
Nolin Variant	Feb-Apr	
Olentangy	Nov-Dec	
Orrville	Nov-May	
Otego	Nov-Dec	
Papakating	Nov-Jun	
Patton	Jan-Dec	
Peoga	Jan-Dec	
Pewamo	Mar-Apr	
Philo	Dec-May	
Piopolis	Mar-Jun	
Pope	Nov-Apr	
Rockmill	Sep-Jun	
Romeo	Mar-Jun	
Ross	Nov-Jun	
Rosburg	Nov-Jun	
Sarahsville	Dec-May	
Saranac	Nov-May	
Scioto	Nov-Jun	
Sebring	Nov-Jun	Occasionally flooded
Senecaville	Dec-Apr	
Shoals	Oct-Jun	
Shoals Variant	Nov-May	Used in Miami, Putnam, and Richland Counties
Shoals Variant	Oct-Jun	Used in Champaign County
Shoals, Till Substratum	Nov-Dec	

SOILS	MONTHS	COMMENT
Skidmore	Dec-May	
Sligo	Mar-Apr	
Sloan	Nov-Jun	
Sloan, Till Substratum	Nov-Dec	
Stanhope	Nov-Dec	
Stendal	Jan-May	
Stone	Nov-Jun	
Stonelick	Nov-Jun	
Stringley	Nov-Jun	
Taggart	Jan-Dec	
Tioga	Nov-May	
Tioga Variant	Jan-Apr	
Toledo	Nov-May	
Tremont	Jan-Dec	
Wabash	Nov-May	
Wabasha	Sep-Jun	
Wakeland	Jan-May	
Wallkill	Sep-Jun	
Wappinger	Jan-Dec	
Warsaw Variant	Jan-May	
Wayland	Nov-Jun	
Wick	Oct-Jun	
Wilbur	Oct-Jun	
Willette	Nov-Dec	
Zepernik	Nov-Jun	
Zipp	Dec-May	

APPENDICIES

APPENDIX A, TABLE 2 – LAND APPLICATION RESTRICTIONS

	1	2	3	4
APPENDIX A, TABLE 2 RULE 901:10-2-14 LAND APPLICATION RESTRICTIONS	STAGING AREAS AND STOCKPILES (10)	SURFACE APPLICATION	WINTER APPLICATIONS FROZEN OR SNOW- COVERED GROUND (1)	SURFACE INCORPORATION WITHIN 24 HRS OR DIRECT INJECTION
Class V Wells, Sinkholes	300'	300'	300'	100'
Surface Waters of the State (7)	300'	35' Veg. Cover, 100' (2)	35' Veg. Cover, 200' (8)	35' Veg. Cover, 100' (2)
Wells	300'	300'	300'	100'
Bedrock	> 3' from bedrock	None	None	None
Public Surface Drinking Water Intake	1500'	300'	300'	300'
Springs	300'	300'	300'	300'
Neighboring Residences	500'	300'	300'	100'
Flooding/Flood Plains/Floodways (3)	Do Not Stockpile	Do Not Apply	Do Not Apply	Permissible (3)
Slope (4)	0 – 6%	> 15%, See Note (5)	If > 6%, See Note (1)	> 15%, See Note (5)
Field Surface Furrows (6)	300'	35' Veg. cover, 100' (2) or 35' see note (9)	200'	None
Maximum Application Rate:	Liquid Manure –Appendix B (AWC Chart) & Appendix F (Most Limiting Nutrient Chart) Solid Manure –Appendix F (Most Limiting Nutrient Chart)			

NOTE (1): All winter surface applications must have prior approval from the Ohio Department of Agriculture. Application on frozen and snow-covered soil is not recommended. However, if manure application becomes necessary on frozen or snow-covered soils, only limited quantities of manure shall be applied to address waste storage limitations until non-frozen soils are available for manure application. If frozen or snow-covered ground application becomes necessary, applications are to be applied only if ALL the following criteria are met:

- a.) Application rate is limited to 10 wet tons per acre for solid manure more than 50% moisture and 5 wet tons for manure less than 50% moisture. For Liquid manure, the application rate is limited to 5,000 gallons per acre.
- b.) Applications are to be made on land with at least 90% surface residue cover (e.g., good quality hay or pasture field, all corn grain residue remaining after harvest, all wheat residue cover remaining after harvest).
- c.) Manure shall not be applied on more than 20 contiguous acres. Contiguous areas for application are to be separated by a break of at least 200 feet. Utilize those areas for manure application that are furthest from streams, ditches, waterways, surface water, etc. (areas that present the least runoff potential and are furthest from surface water).
- d.) Increase the application setback distance to 200 feet "minimum" from all grassed waterways, surface drainage ditches, streams, water bodies, and field surface furrows. This distance may need to be further increased due to local conditions.
- e.) The rate of application shall not exceed the rates specified in Table 4 (Determining The Most Limiting Manure Application Rates) for winter application.
- f.) Additional winter application criteria for fields with significant slopes more than 6%: Manure shall be applied in alternating strips 60 to 200 feet wide generally on the contour, or in the case of contour strips on the alternating strips.

NOTE (2): Either a 35' wide vegetative buffer strip must be present or a total setback of 100' must be maintained. As a compliance alternative, the concentrated animal feeding operation may demonstrate that a setback or buffer is not necessary because implementation of alternative conservation practices or field-specific conditions will provide pollutant reductions equivalent or better than the reductions that would be achieved by the one hundred foot setback or a thirty-five foot vegetative buffer. Buffer strip is defined in OAC 901:10-1-01.

NOTE (3): No applications during expected flooding season as reported in Appendix A, Table 1.

NOTE (4): Must have less than 5 ton/ac yearly average soil loss to perform surface manure applications.

NOTE (5): Manures are not to be applied to cropland over 15% slope or to pastures/hay land over 20% slope unless ONE of the following precautions are taken:

- a.) Immediate incorporation or injection with operations done on the contour, UNLESS the field has 80% ground cover (residue or canopy).
- b.) Applications are timed during periods of lower runoff and/or rainfall (May 20th – October 15th).
- c.) Split applications are made (separated by rainfall events) with single applications not exceeding 10 wet tons/ac or 5000 gal/ac.
- d.) The field is established and managed in contour strips with alternated strips in grass or legumes.

NOTE (6): Applications can be through field surface furrows if criteria in Appendix A (How to Use Appendices) are followed.

NOTE (7): Refer to OAC 901:10-1-01 for the definition of "Surface waters of the state."

NOTE (8): The first setback refers to a vegetative buffer strip that must be maintained while the second refers to the total setback distance. Buffer strip is defined in OAC 901:10-1-01.

Note (9): A 35' buffer without vegetation may be approved by the Director based on prior submittal of a compliance alternative for the specific land application area, in accordance with OAC 901:10-2-14(C)(3).

Note (10): Staging area(s) is a site used for placement of solid manure or transferring of liquid manure to facilitate land application. Any solid manure that is staged for more than 15 days will be considered a stockpile. Staging areas and stockpiles shall not discharge to waters of the State.

Source: USDA-NRCS (2012). Field Office Technical Guide – Conservation Practice Standard, 590, Columbus, Ohio.

APPENDICIES

APPENDIX B – AVAILABLE WATER CAPACITY (AWC)

This table shall be used to determine the AWC at the time of application and the liquid volume in gallons that can be applied not to exceed the AWC. To determine the AWC in the upper 8 inches use a soil probe or similar device to evaluate the soil to a depth of 8 inches. For land application, liquid manure application may also be calculated by converting acres per inch to gallons per acre. This conversion is based on the following formula: *1 acre – inch equals 27,156 gal/ac.*

Available Moisture in the Soil	Sands, Loamy Sands	Sandy Loam, Fine Sandy Loam	Very Fine Sandy Loam, Loam, Silt Loam, Silty Clay Loam	Sandy Clay, Silty Clay, Clay, Fine & Very Fine Textured Soils
< 25% Soil Moisture	Dry, loose and single-grained; flows through fingers.	Dry and loose; flows through fingers.	Powdery dry; in some places slightly crusted but breaks down easily into powder.	Hard, baked and cracked; has loose crumbs on surface in some places.
Amount to Reach AWC	20,000 gallons/ac	27,000 gallons/ac	40,000 gallons/ac	27,000 gallons/ac
25-50% or Less Soil Moisture	Appears to be dry; does not form a ball under pressure.	Appears to be dry; does not form a ball under pressure.	Somewhat crumbly but holds together under pressure.	Somewhat pliable; balls under pressure.
Amount to Reach AWC	15,000 gallons/ac	20,000 gallons/ac	30,000 gallons/ac	20,000 gallons/ac
50-75% Soil Moisture	Appears to be dry; does not form a ball under pressure.	Balls under pressure but seldom holds together.	Forms a ball under pressure; somewhat plastic; slicks slightly under pressure.	Forms a ball; ribbons out between thumb and forefinger.
Amount to Reach AWC	10,000 gallons/ac	13,000 gallons/ac	20,000 gallons/ac	13,000 gallons/ac
75% to Field Capacity	Sticks together slightly; may form a weak ball under pressure.	Forms a weak ball that breaks easily, does not stick.	Forms ball; very pliable; slicks readily if relatively high in clay.	Ribbons out between fingers easily; has a slick feeling.
Amount to Reach AWC	5,000 gallons/ac	7,000 gallons/ac	11,000 gallons/ac	7,000 gallons/ac
100% Field Capacity	On squeezing, no free water appears on soil, but wet outline of ball on hand.	On squeezing, no free water appears on soil, but wet outline of ball on hand.	On squeezing, no free water appears on soil, but wet outline of ball on hand.	On squeezing, no free water appears on soil, but wet outline of ball on hand.
Above Field Capacity	Free water appears when soil is bounced in hand.	Free water is released with kneading.	Free water can be squeezed out.	Puddles; free water forms on surface.

Note: Liquid manure applications to tiled fields must be less than or equal to 13,576 gal/ac.

APPENDIX F, TABLE 1 – MOST LIMITING MANURE APPLICATION RATES FOR TILED FIELDS

Select the Most Limiting Application Rate Based on the Following Criteria					
Field Situation & Time of Year	Limiting Application Rate Criteria				
	Nitrogen	P₂O₅ 4/	K₂O	Tons/Ac Gallons/Ac	AWC Table
Subsurface Drained (Tiled) Fields					
(APR – JUN) Subsurface Drained or High N Leaching Potential	1/ Crop Needs factoring N losses	Crop Needs or Crop Removal < 250 Lbs/ac	Crop Needs or Crop Removal < 500 Lbs/ac	13,000 gal/ac	Upper 8"
(APR – JUN) Pasture > 20% or Cropland > 15% Subsurface Drained or High N Leaching Potential	1/ Crop Needs factoring N losses	Crop Needs or Crop Removal < 250 Lbs/ac	Crop Needs or Crop Removal < 500 Lbs/ac	5/ 10 wet tons 5,000 gal/ac – unless contoured strips or incorporated immediately	Upper 8"
(JUL – SEP) No Growing Crop Subsurface Drained or High N Leaching Potential	2/ 50 Lbs/ac as applied N	Crop Needs or Crop Removal < 250 Lbs/ac	Crop Needs or Crop Removal < 500 Lbs/ac	13,000 gal/ac	Upper 8"
(JUL – SEP) With a Growing Cover Crop Subsurface Drained or High N Leaching Potential	3/ Next year's crop needs as applied N	Crop Needs or Crop Removal < 250 Lbs/ac	Crop Needs or Crop Removal < 500 Lbs/ac	13,000 gal/ac	Upper 8"
(JUL – SEP) No Growing Crop, Cropland > 15% Subsurface Drained or High N Leaching Potential	2/ 50 Lbs/ac as applied N	Crop Needs or Crop Removal < 250 Lbs/ac	Crop Needs or Crop Removal < 500 Lbs/ac	13,000 gal/ac	Upper 8"
(OCT – MAR) Subsurface Drained or High N Leaching Potential	3/ Next year's crop needs as applied N	Crop Needs or Crop Removal < 250 Lbs/ac	Crop Needs or Crop Removal < 500 Lbs/ac	13,000 gal/ac	Upper 8"
(OCT – MAR) Pasture > 20% or Cropland > 15% Subsurface Drained or High N Leaching Potential	3/ Next year's crop needs as applied N	Crop Needs or Crop Removal < 250 Lbs/ac	Crop Needs or Crop Removal < 500 Lbs/ac	5/ 10 wet tons 5,000 gal/ac – unless contoured strips or incorporated immediately	Upper 8"
Frozen or Snow-Cover Subsurface Drained or High N Leaching Potential	3/ Next year's crop needs as applied N	Crop Needs or Crop Removal < 250 Lbs/ac	Crop Needs or Crop Removal < 500 Lbs/ac	5/ 10 wet tons < 50% solids, stockpile if > 50% solids, liquid manure 5,000 gal/ac	
1/ Crop Needs factoring N losses – Maximum total nitrogen applied to meet the succeeding crop's recommended NITROGEN requirements for non-legume crops or 150 lbs/ac NITROGEN for the succeeding legume crop. Considers loss of N through application method and time of year.					
2/ 50 lbs/ac as applied N – Nitrogen application limited to 50 lbs/ac based on the addition of the NH ₄ or NH ₃ (ammonium/ammonia) content of the manure + 1/3 of the organic nitrogen content the manure as applied. Considers no losses due to application method or time of year.					
3/ Next year's crop needs as applied N – Maximum total nitrogen applied to meet the succeeding crop's recommended NITROGEN requirements for non-legume crops or 150 lbs/ac NITROGEN for the succeeding legume crop. Considers no losses due to application method or time of year.					
4/ Under special conditions and criteria the rate of P ₂ O ₅ application can be increased to 500 lbs/ac (See Appendix A or Rule 901:10-2-14). Frozen or Snow-covered ground and fields over 100 ppm Bray P1 soil test are exempt and are always limited to applications less than or equal to 250 lb/ac P₂O₅.					
5/ Wet tons refers to the weight of the manure as it is applied – include solids and moisture weight.					

APPENDIX F, TABLE 2 – MOST LIMITING MANURE APPLICATION RATES FOR NON-TILED FIELDS

Select the Most Limiting Application Rate Based on the Following Criteria					
Field Situation & Time of Year	Limiting Application Rate Criteria				
	Nitrogen	P₂O₅ 4/	K₂O	Tons/Ac Gallons/Ac	AWC Table
Non Subsurface Drained (Tiled) Fields					
(JUL – SEP) Not Subsurface Drained	1/ Crop Needs factoring N losses	Crop Needs or Crop Removal < 250 Lbs/ac	Crop Needs or Crop Removal < 500 Lbs/ac		Upper 8"
(OCT – MAR) Not Subsurface Drained	1/ Crop Needs factoring N losses	Crop Needs or Crop Removal < 250 Lbs/ac	Crop Needs or Crop Removal < 500 Lbs/ac		Upper 8"
(APR – JUN) Not Subsurface Drained Pasture > 20% or Cropland > 15%	1/ Crop Needs factoring N losses	Crop Needs or Crop Removal < 250 Lbs/ac	Crop Needs or Crop Removal < 500 Lbs/ac	5/ 10 wet tons 5,000 gal/ac – unless contoured strips or incorporate immediately	Upper 8"
(JUL – SEP) Not Subsurface Drained Pasture > 20% or Cropland > 15%	1/ Crop Needs factoring N losses	Crop Needs or Crop Removal < 250 Lbs/ac	Crop Needs or Crop Removal < 500 Lbs/ac		Upper 8"
Frozen or Snow-Cover Not Subsurface Drained	1/ Next year's crop Needs factoring N losses	Crop Needs or Crop Removal < 250 Lbs/ac	Crop Needs or Crop Removal < 500 Lbs/ac	5/ 10 wet tons < 50% solids, stockpile if > 50% solids, liquid manure 5,000 gal/ac	
(OCT – MAR) Not Subsurface Drained Pasture > 20% or Cropland > 15%	1/ Crop Needs factoring N losses	Crop Needs or Crop Removal < 250 Lbs/ac	Crop Needs or Crop Removal < 500 Lbs/ac	5/ 10 wet tons 5,000 gal/ac – unless contoured strips or incorporate immediately	Upper 8"
1/ Crop Needs factoring N losses – Maximum total nitrogen applied to meet the succeeding crop's recommended NITROGEN requirements for non-legume crops or 150 lbs/ac NITROGEN for the succeeding legume crop. Considers loss of N through application method and time of year.					
2/ 50 lbs/ac as applied N – Nitrogen application limited to 50 lbs/ac based on the addition of the NH ₄ or NH ₃ (ammonium/ammonia) content of the manure + 1/3 of the organic nitrogen content the manure as applied. Considers no losses due to application method or time of year.					
3/ Next year's crop needs as applied N – Maximum total nitrogen applied to meet the succeeding crop's recommended NITROGEN requirements for non-legume crops or 150 lbs/ac NITROGEN for the succeeding legume crop. Considers no losses due to application method or time of year.					
4/ Under special conditions and criteria the rate of P ₂ O ₅ application can be increased to 500 lbs/ac (See Appendix A or Rule 901:10-2-14). Frozen or Snow-covered ground and fields over 100 ppm Bray P1 soil test are exempt and are always limited to applications less than or equal to 250 lb/ac P₂O₅.					
5/ Wet tons refers to the weight of the manure as it is applied – include solids and moisture weight.					

APPENDIX C, TABLE 6 – CALCULATING AVAILABLE NITROGEN OF MANURE

Use the following table to calculate available nitrogen based on time of year and type of application. Determine available nitrogen by multiplying the percent available for ammonia N and organic N and adding them together (i.e., $0.5 \times \text{NH}_4\text{N} + 0.33 \times \text{Organic N}$).

			ODA APPENDIX C, TABLE 6: METHOD OF CALCULATING N AVAILABILITY OF MANURES ¹			
Manure Applied	Manure Available Nitrogen	Poultry Manure Available Nitrogen	Available Nitrogen %		Time of Application	Days Until Incorporated ²
TONS	POUNDS	POUNDS	NH ₄	ORGANIC	DATE	DAYS
			50	33	NOV – FEB	≤ 5
			25	33	NOV – FEB	> 5
			50	33	MAR – APR	≤ 3
			25	33	MAR – APR	> 3
			75	33	APR – JUN	≤ 1
			25	33	APR – JUN	> 1
			75	15	JUL – AUG	≤ 1
			25	15	JUL – AUG	> 1
			25	33	SEP – OCT	≤ 1
			15	33	SEP – OCT	> 1
			¹ The calculations are for all animal manures. It is assumed that 50% of the organic N in poultry manure is converted to NH ₄ rapidly and is therefore included in the NH ₄ column for calculating available N.			
			² Incorporation is the mixing of manure and soil in the tillage layer. Disking is usually enough tillage for conserving N availability.			

LAND APPLICATION RECORDS

The forms provided for this section of the Operating Record are to record important information regarding different aspects of land application and to comply with Rule 901:10-2-16 of the OAC. An owner or operator may select other forms for use, provided the Director of Agriculture approves these.

Determination of application rates. Application rates shall follow the nutrient budget set forth in the Permit to Operate's Manure Management Plan and the restrictions contained in Rule 901:10-2-14 of the OAC. The permittee must amend the nutrient budget as necessary whenever the facility makes a change from the Manure Management Plan in how it manages the location, method, timing, or frequency of land application. If there are changes, the Nutrient Budget must account for these changes and the revised Nutrient Budget/Cropping schedule must be maintained in the operating record for the inspector's review

Projected and Actual Crop Yields (Form 7A)

The projected crop yields for each field should already be set forth in the Total Nutrient Budget approved in the Manure Management Plan. If this projected or targeted yield would differ from the Plan, then this should be recorded on Form 7A. Upon completion of harvest, the actual yield for that field should be recorded on Form 7A or a similar type form for the inspector's review. Form 7A also allows the CAFF to record the future years cropping plan and yields where multi-year application of manure is planned.

LAND APPLICATION (Form 7B1, 7B2 or 7B3) – Any of these forms (7B1, 7B2 or 7B3) may be utilized to record appropriate information at the time of land application. In addition, an alternative form may be utilized provided it is approved prior to use the ODA-LEPP.

The following information must be documented:

Sites. List or describe specific sites that are used for land application of manure. This includes land that is owned and/or leased by the owner/operator and other land that the owner/operator applies manure on (i.e., land where the CAFF controls the application).

Best management practices.

1. Record all land application equipment that the owner or operator owns or has access to. This equipment must be properly maintained and not leak. Periodic inspections for leaks are required. Record the dates of inspections for leaks (see Form 2).
2. Record observations of the drain outlets for liquid manure flow during and after application of liquid manure to a land application site with subsurface drains.
3. Record the use of drain plugs or other devices when liquid manure is applied.
4. Record site inspections to inspect setbacks used to maintain vegetative cover and to protect stream channels or areas adjacent to stream channels, and as required by Rule 901:10-2-14 of the OAC.
5. Record the date, rate, quantity, and method of application of the nutrient, and/or form and source of manure, commercial fertilizer and/or other organic by-products.

6. Record total amount of nitrogen and phosphorus actually applied to each field, including documentation of calculations for the total amount applied.
7. Record the condition of the soil at the time of application including, but not limited to, available water capacity and evidence of soil cracks and related information on soil conditions. Refer to the Available Water Capacity Chart Appendix B of Rule 901:10-2-14 of the OAC for liquid manures.
8. Record the temperature conditions including weather conditions for 24 hours prior to manure application, at the time of the application, and for the 24 hours after application. Refer to Internet site: <http://www.uswx.com/us/wx/oh/> and determine the percent chance of rain listed in the hour-by-hour forecast. In the alternative, record the percent chance of rain or rain forecast published in your area in a newspaper of general circulation. List any publicized weather report on rainfall accumulation.
9. Record the implementation dates of those best management practices necessary to reduce the risk of nitrogen and phosphorus runoff by crop rotation, cover crops, or residue management. Refer to 901:10-2-14 of the OAC and several of the appendices to this rule for information on how to calculate the total amount of nitrogen and phosphorus to be applied to each field, how to calculate the rate of application, and how to comply with setbacks.

LAND APPLICATION CROPPING SCHEDULE

[illegible]

1. The projected crop yield for each crop in each land application area shall be based on (a) soil productivity information; (b) historical yield data; (c) potential yield; or (d) combinations of yield data.
2. An additional 10 percent may be added to the potential and/or historical yields to account for improvements in management and technology.
3. When historical yield data is not available a realistic yield may be based on local research or on yields from similar soils and/or cropping systems in the area.
4. For new or potential crops or varieties, industry yield estimates may be used until actual yields are available for documentation in the operating record.
5. Attach the soil tests to this section of the Operating Record. **Be sure to identify each field per each sample taken. Identify the laboratory method used to analyze the manure, which must be Publication 221, "Recommended Chemical Soil Test Procedures for the North Central Region; Published by the North Central Regional Committee on Soil Testing and Plant Analysis (NCR-13), North Dakota Agricultural Experiment Station."**

LAND APPLICATION FIELD INFORMATION FORM

[illegible]

LAND APPLICATION FIELD INFORMATION FORM

Ohio EPA NPDES MMP Record Forms
Falling Star Farm
4/3/2018 9:49 AM
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LAND APPLICATION FIELD INFORMATION FORM

Date:	Time Start:	Time Stop:	Applicator name:		
Facility:	Manure source: (storage structure)	Type of manure?	Species? Poultry Swine Dairy Beef		
Field ID:		Solid Sand Liquid			
Method of Application: Spreader Irrigation Tank Dragline	Equipment Inspected and calibrated? Yes No	Manure Incorporated? Yes No	Date and type of Incorporation:		
Total gallons or tons applied:	Application Rate Per Acre:	Total Acres Applied To:	Calculated Rate (gal/ac or tons/acre):		
Tile Checks –time	Rate of P ₂ O ₅ Applied: Rate of Avail. N Applied:	Manure inspected and treated for insects? Yes No NA			
Tile Checks - condition	Surface Runoff Checks – time	Surface Runoff Checks – condition/flow/dry/etc.-			
Current Crop:	Next Crop:				
Residue type and % cover:	Soil Saturation (% AWC):				
Soil Cracks Present? Tile Blowout Present?	Applied to frozen or snow covered ground? Yes No				
Date and Time of Most Recent Forecast (attach copy)	Problems or comments:				
Most recent Soil Test Values (provide units)	N - NA	P	K		
Range of phosphorus from most recent soil tests. Year of sample: (circle appropriate range)	<40 ppm (<80 #/acre)	40-100 ppm (80-200 #/acre)	100-150 ppm (200-300 #/acre)		
Most recent Manure analysis (provide units):	N	P	K		
Commercial Fertilizer Applied	N	P	K		
Actual precipitation after application.	Day 1 (manure app. day)	Day 2 Date:	Day 3 Date:	Day 4 Date:	Day 5 Date:
Setbacks are equal or greater than restrictions in Appendix A, Table 2 to rule 901:10-2-14 Yes No					

Attach or draw field maps below with setbacks shown:

MORTALITY MANAGEMENT PLAN RECORD

Disposal methods for mortality must comply with Rule 901:10-2-15 of the OAC and the Mortality Management Plan in the Permit to Operate. Use this form or another form pre-approved by the Director to record the following information:

1. The dates and times of inspection of each building.
2. The number of dead animals removed from each building.
3. The best management practices used to implement the proper and appropriate disposal of dead livestock.

MORTALITY MANAGEMENT RECORD

Disposal Method:

Date	Location of Disposal (i.e.: of landfill/rendering/etc)	Number Dead	Date	Location of Disposal (i.e.: of landfill/rendering/etc)	Number Dead

Disposal Methods for Mortalities:

B = Burial on site; I = Incineration; R = Render; L = Landfill; C = Compost

EMERGENCY SPILL REPORT FORM

(OAC 901:10-2-16(A)(1)(a)(xii) and 901:10-2-17)

IN THE EVENT OF A DISCHARGE OR MANURE SPILLAGE, THE OWNER OR OPERATOR SHALL CONTACT THE OHIO DEPARTMENT OF AGRICULTURE BY TELEPHONE AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN TWENTY-FOUR HOURS FOLLOWING FIRST KNOWLEDGE OF THE OCCURRENCE. USE THE CONTACT INFORMATION CONTAINED IN THE FACILITY'S EMERGENCY RESPONSE PLAN.

THE PERSON REPORTING THE DISCHARGE SHALL SUPPLY THE FOLLOWING INFORMATION TO THE OHIO DEPARTMENT OF AGRICULTURE:

1. List the times at which the discharge or manure spill occurred and was discovered.
2. List the approximate amount and the characteristics of the discharge or manure spillage.
3. If applicable list the waters of the State affected by the discharge or spillage.
4. List the circumstances which created the discharge or spillage.
5. List the names and phone numbers of persons who have knowledge of these circumstances.
6. List the steps taken to clean up the discharge or spillage.
7. List the names and telephone numbers of persons responsible for the cleanup.
8. Provide all Land Application Records that are relevant to the application period in which the spill occurred. These records should also show any weather reports and rainfall events that may have contributed to the spill or discharge.

IN ADDITION, THE OWNER OR OPERATOR SHALL ALSO FILE A WRITTEN REPORT OF THE OCCURRENCE IN LETTER FORM WITHIN FIVE DAYS FOLLOWING FIRST KNOWLEDGE OF THE OCCURRENCE, UNLESS OTHERWISE WAIVED BY THE DIRECTOR. THIS INFORMATION SHALL ALSO BE KEPT IN THE OPERATING RECORD (A form is provided below). THIS REPORT SHALL OUTLINE THE ACTIONS TAKEN OR PROPOSED TO BE TAKEN TO CORRECT THE PROBLEM AND TO ENSURE THAT THE PROBLEM DOES NOT RE-OCCUR. SEE 901:10-2-17(A)(4)(d).

(The written report shall be sent to the following address: Ohio Department of Agriculture, Livestock Environmental Permitting Program, 8995 East Main Street, Reynoldsburg, Ohio 43068.)

FORM 12: EMERGENCY SPILL REPORT FORM CONTINUED

NAME OF FACILITY:	
DATE AND TIME OF DISCHARGE/SPILL¹:	
DATE AND TIME DISCHARGE/SPILL DETECTED:	
AMOUNT²:	
CHARACTERISTICS OF THE DISCHARGE OR MANURE SPILLAGE³	
LOCATION/WATER WAY AFFECTED⁴:	
SPILL OCCURRED BECAUSE:	
NAMES/PHONE NUMBERS OF PERSONS WITH KNOWLEDGE OF SPILL	
AGENCIES CONTACTED:	
EQUIPMENT USED:	
STEPS TAKEN TO CONTAIN AND REMEDIATE THE SPILL:	

NAMES/PHONE NUMBERS OF PERSONS RESPONSIBLE FOR THE CLEANUP	
ACTIONS TAKEN/TO BE TAKEN TO ENSURE PROBLEM DOES NOT RE-OCCUR	

Date report sent to Ohio Department of Agriculture: _____

Signature

Name (printed)

¹ **Time:** The time of the discharge or manure spill. If the discharge or spill was detected after it happened, give an estimate of the time when the discharge or spill occurred.

² **Amount:** Give an estimate of the number of gallons or tons of manure, litter, or process wastewater discharged. The date, time, and approximate volume of any discharge from the production area shall also be filed in the annual report.

³ **Characteristics:** Provide other relevant information about the discharge, including the source, cause, composition (e.g., emergency overflow of process wastewater from lagoon #2), and impacts observed (e.g., fish kill in water body).

⁴ **Location:** The location of any discharge to waters of the State. Be specific. Include the name of the water body, and a specific description of where the manure, litter, or process wastewater entered the water body. Include landmarks or other points of reference (e.g., Three Mile Creek, at southeast corner of feedlot where creek bends to the west).